

July 1933

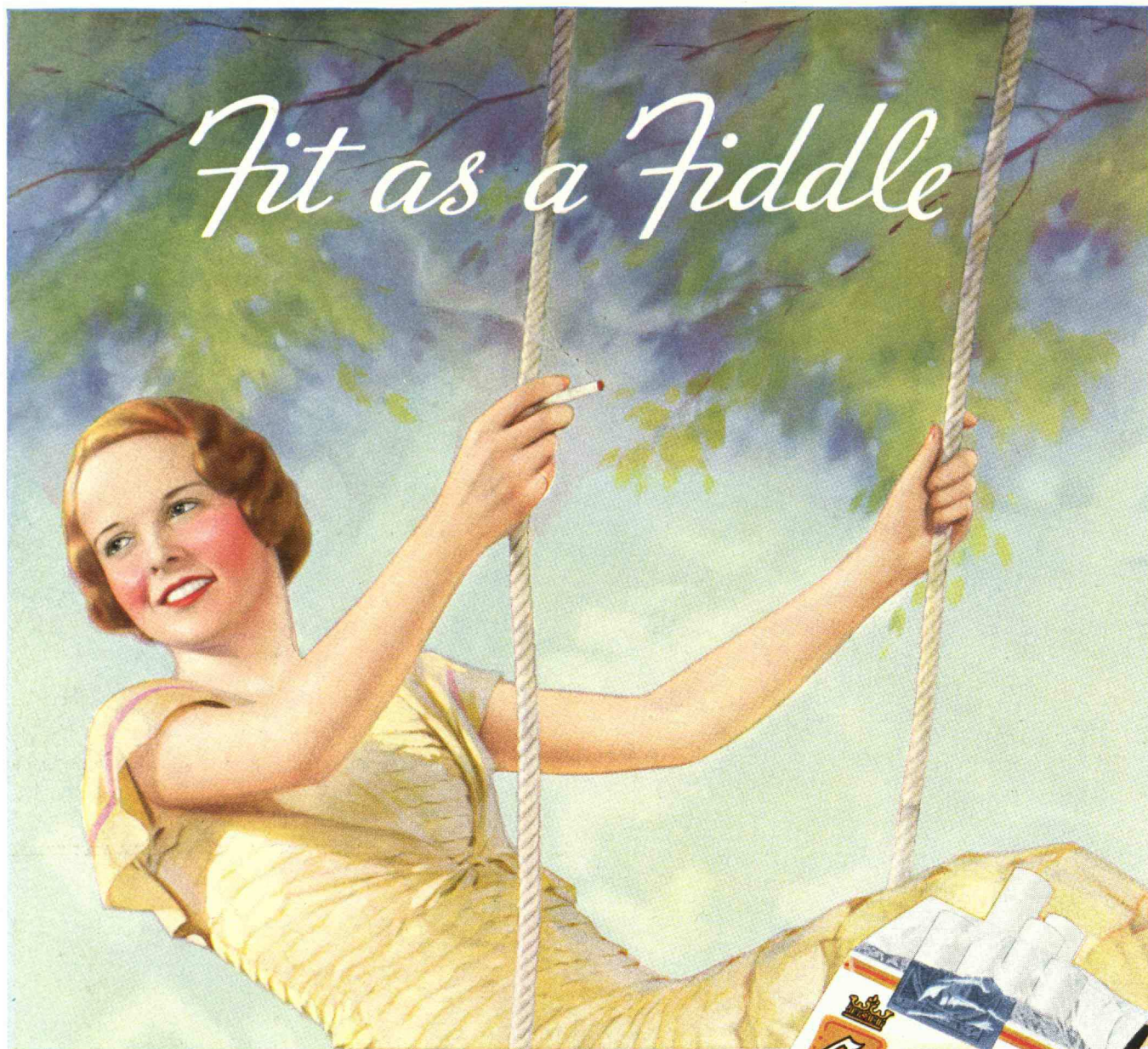
TECHNOLOGY REVIEW



technology review

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Fit as a Fiddle

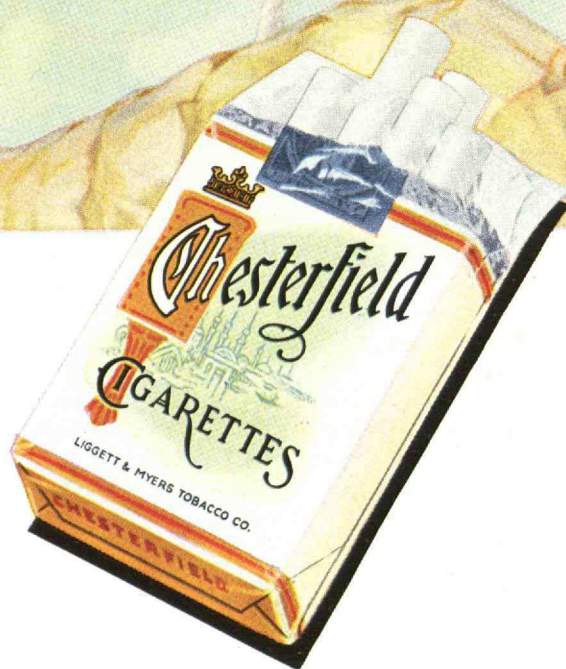
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THE CIGARETTE THAT TASTES BETTER

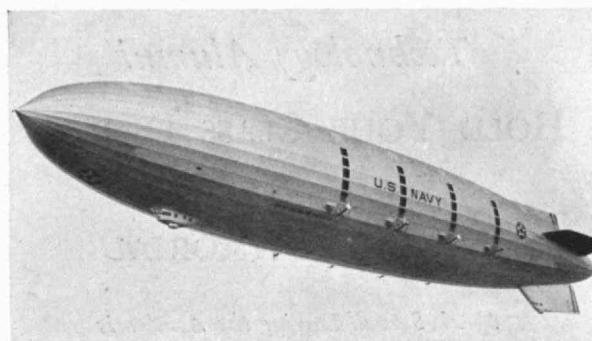
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THE TABULAR VIEW

WHAT better proof than cosmic rays of John Owen's remark, "Nature never proclaims her secrets aloud, but always whispers them"? ARTHUR H. COMPTON, Nobel Laureate and Professor of Physics at the University of Chicago, describes how Nature's reticence is being circumvented in an effort to discover the solution of the cosmic ray charade. His article (page 327) is based on a brilliant lecture given by him at M. I. T. during the dedication of the George Eastman Research Laboratories of Physics and Chemistry. ¶ As he retires from the Presidency of Harvard University, A. LAWRENCE LOWELL is the recipient of felicitations from the entire educational world on his distinguished service to that institution. It is a pleasure for The Review to present the oration he delivered at Technology's graduation exercises on June 6. ¶ So frequently is the question asked "How is American engineering organized?" that the Review Staff found it expedient to attempt a complete answer. If the tables, charts, and text presented in this issue are not complete and adequate, the Editors would appreciate emendations. So far as we can discover, no such study of engineering organizations of this country has ever been made before, and we hope that this one will fill the gap. ¶ HAROLD L. HAZEN, '24, is an Assistant Professor of Electrical Engineering and has participated in the development of the integragraphs and analyzers built by his department. He has contributed two major articles to The Review: "Miniature Power Systems," published in July, 1931, and "Working Mathematics by Machinery," in May, 1932.

WITH compelling, though we hope pardonable, enthusiasm, we record the pleasing intelligence that The Review, too, in this season of bays and laurels, has received what a contemporary painfully calls "kudos." In a contest conducted by the American Alumni Council, The Review was designated as (1) having published the best article, and (2) having presented the best page layout among all the graduate and alumni magazines published during the year in the United States. Recalling that once before The Review was awarded the palm for having the most handsome cover, we are naturally experiencing a modest glow of pride now that our inner worth is recognized equally with our outer form.

THE Review is not published during the summer months following July. This issue concludes Volume 35. Number 1 of Volume 36 will be published on September 27, and dated October. Readers who bind their copies of The Review are reminded that if they possess nine numbers of Volume 35, their files are complete. An index to Volume 35 will be ready on September 15, and will be supplied post free on request. While Volume 35 ends with the July issue, The Review will not celebrate its Thirty-Fifth, or Coral, Anniversary until January, 1934, the first issue of The Review having appeared under date of January, 1899.



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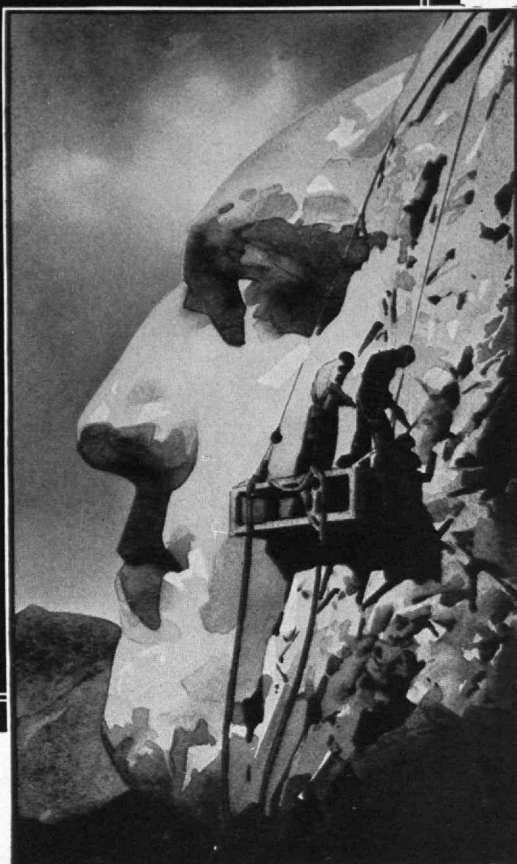
THE ROOSEVELT

Edward C. Fogg, Managing Director

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**G.T.M. SPECIFIED
GOODYEAR
AIR DRILL HOSE**

..... STYLE M



A MONUMENTAL TASK FOR HOSE—and the G. T. M.

ON the huge granite brow of Mount Rushmore in South Dakota, the vast sculpture conceived by Gutzon Borglum is emerging from the living rock to a symphony of power drills and powder blasts.

Completed, it will be an enduring memorial to four great sculptors of the American nation—Washington, Jefferson, Lincoln and Theodore Roosevelt. Its inscription was written by Calvin Coolidge.

It is being hewn from the everlasting rock by workmen suspended from belts and cables anchored on the mountain top, their hands

steadying the throbbing drills and hammers fed by pressure lines of Goodyear Hose.

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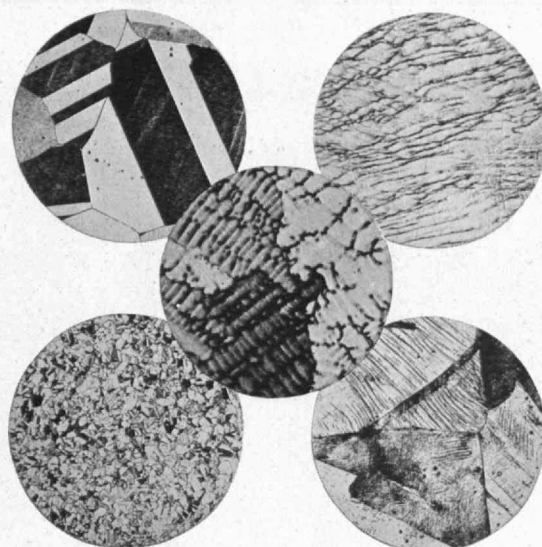
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THE TECHNOLOGY REVIEW

A NATIONAL JOURNAL DEVOTED TO SCIENCE, ENGINEERING, AND THE PRACTICAL ARTS

Edited at the Massachusetts Institute of Technology

VOLUME 35

NUMBER 9

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PUBLISHED monthly on the twenty-seventh of the month preceding the date of issue at 50 cents a copy. Annual subscription \$3.50; Canadian and foreign subscription \$4.00. Published for the Alumni Association of the M. I. T. Redfield Proctor, President; Harrison P. Eddy, Jr., Edward L. Moreland, Vice-Presidents; Charles E. Locke, Secretary; J. Rhyme Killian, Jr., Treasurer.

Published at the Rumford Press, 10 Ferry Street, Concord, N. H. Editorial Office, Room 11-203, Massachusetts Institute of Technology, Cambridge A, Mass. Entered as Second-Class Mail Matter at the Post Office at Concord, N. H. Copyright, 1933, by the Alumni Association of the Massachusetts Institute of Technology. Three weeks must be allowed to effect changes of address. Both old and new addresses should be given.



M.I.T. Photo

Reading from left to right: Vannevar Bush, '16, Vice-President and Dean of Engineering, M. I. T.; Arthur C. Hardy, '18, Associate Professor of Optics and Photography; Karl T. Compton, President; Samuel C. Prescott, '94, Dean of Science; and Harry M. Goodwin, '90, Dean of the Graduate School

NEW COLOR ANALYZER

This instrument, developed by Professor Hardy for the Color Measurements Laboratory of M. I. T.'s Department of Physics, is designed primarily for measuring the color of opaque materials, such as paper, textile fabrics, ceramic products, and surfaces coated with paint, ink, or lacquer. By a slight modification of the optical system, it will measure the color of solutions or transparent substances also. The instrument employs a photo-electric cell and is entirely automatic in its operation. The sample whose color is to be measured is placed against one of the holes in a small integrating sphere and the instrument draws a curve indicating the amount of light reflected or transmitted by the specimen at each wave length. By means of an integrating attachment, which is still under construction, the color sensation evoked in the brain of a normal observer can be computed, thus enabling a color to be described by three numbers instead of by descriptive terms whose meaning is necessarily ambiguous

THE TECHNOLOGY REVIEW

Vol. 35, No. 9



July, 1933

Cosmic Ray Clues

Further Light on the Nature of Earth's Incognito Visitors

BY ARTHUR H. COMPTON

THREE major methods of observing cosmic rays have been developed. By means of an ionization chamber filled with a gas such as argon under high pressure the cosmic rays can be measured in terms of the conductivity or ionization they produce in the gas. Thus it is found that at high altitudes in a balloon or on a mountain a much greater ionization is observed than at sea level, while inside a deep tunnel, if the gas is shielded from gamma rays, ionization is almost completely absent.

The cloud expansion chamber, invented by C. T. R. Wilson, makes visible the paths of the ionizing particles associated with the cosmic rays, as they break into ions some of the air molecules through which they pass. Some of these particles seem to be the cosmic rays themselves, whereas others are secondary particles produced by the cosmic rays. Highly sensitive ion chambers, connected through amplifying tubes to electrical recorders, serve to count the cosmic rays as they pass through the chambers. These are known as "counting tubes." By arranging these tubes in pairs, so connected that they will record only when both are excited simultaneously, it is possible to study the direction from which the cosmic rays are coming.

With the help of such devices it has been found that a kind of ray exists which comes from high above the earth and is strongly but not completely absorbed as it passes through the earth's atmosphere. Believing that these

COSMIC RAYS AS TOOLS FOR INVESTIGATING THE STRUCTURE OF THE ATOM. THE ENERGY OF ONE RAY

rays have originated in the remote parts of space, they have been called cosmic rays. The heat that they bring to the earth is less than that of starlight. But they are the most penetrating known rays.

Two types of theories have been suggested to account for the origin of these rays. The first type assumes the cosmic rays to be photons, or electromagnetic waves, like light or x-rays, or the gamma rays from radium, but of much shorter wave-length. If the rays are of this type, their observed penetrating power corresponds to the energy of rays that might be emitted by sub-atomic processes, such as the formation of hydrogen out of helium or the annihilation of hydrogen atoms. Dr. Robert A. Millikan has strongly defended the view that cosmic rays are emitted at the formation of heavy atomic nuclei from groups of lighter nuclei, and has made this a stage in the life cycle of matter in a continuous universe. Sir James Jeans has proposed the annihilation of hydrogen atoms as a source of the most penetrating cosmic rays, and sees this as one way in which the universe is running down.

The second class of theories supposes that cosmic rays are not photons, but electrically charged particles entering the earth's atmosphere from outer space. Dauvillier imagines that these particles are shot out from the sun by intense local electric fields. Swann suggests that they come from the changing magnetic field of sunspots on the hotter stars. But by far the most

romantic and by no means the least plausible theory is that of Abbé Georges H. Lemaitre. He attributes them to a primeval explosion of the universe some thousands of millions of years ago, since which time the universe has been expanding, and certain atoms and pieces of atoms that have been flying about in space ever since constitute the cosmic rays which we now observe.

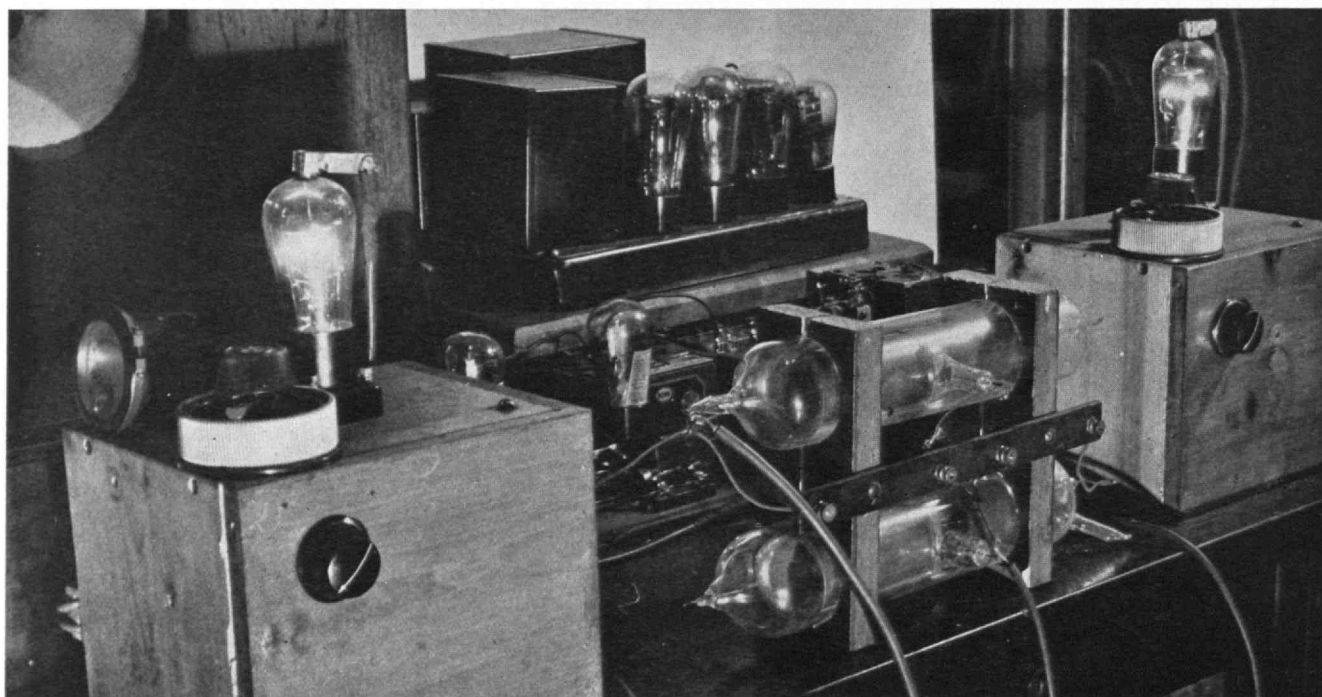
In order that a choice may be made among these theories, it is important that the nature of the cosmic rays be learned. Five methods of approaching this problem may be mentioned:

1. Observations with the cloud expansion chamber described above show that the ionization observed in air is due directly to high speed particles. When a strong magnet is present these particles curve in both directions, indicating that some are positively and some negatively charged. Some of these particles are certainly secondary rays produced by more energetic primary rays, though certain ones have energies sufficient to carry them through the earth's atmosphere. These experiments thus do not tell us whether the primary cosmic ray is a photon or an electrified particle.

2. Experiments with the coincidence counters described above, performed by Bothe and Köhler in Germany and Rossi in Italy, have shown that these coincidences are due to ionizing particles which are absorbed at substantially the same rate as the cosmic rays themselves. These experiments have been supplemented by recent ones by Johnson and Street which show that the pairs of ionizing particles that are frequently observed are produced by rays which are themselves ionizing particles. Since the only ionizing particles with which we are acquainted are electrically charged, these experiments point strongly toward the cosmic rays as electrically charged particles rather than photons.

3. Opposed to this conclusion are some early experiments by Millikan and his collaborators which seemed to show no variation of the intensity of the cosmic rays with the position in the earth's magnetic field. Theories, due to Störmer and recently much more completely developed by Lemaitre and Manuel S. Vallarta at the Massachusetts Institute of Technology, have shown that unless they have energies much greater than is supposed, any electrified particles should have their paths bent by the earth's magnetic field, resulting in a diminished intensity near the equator as compared with that near the poles. During the past year a group of our associated expeditions have made measurements at stations widely distributed over the earth. Their combined data show precisely the kind of variation in intensity with latitude predicted by the theory, only the energy of the electrified particles is somewhat greater than had been supposed. More recent experiments by Clay and by Millikan's collaborators have confirmed this result. This indicates definitely that at least a part of the cosmic rays consists of electrified particles.

4. At those latitudes where the deflection by the earth's magnetic field is sufficient to prevent part of the incoming electrified particles from reaching the earth, there should be a difference between the rays from the east and from the west. If the rays are positively charged, they should come mostly from the west; if negatively, mostly from the east. At these latitudes, numerous experiments have failed to show any appreciable difference. Our geographical distribution curves however indicated that as far south as Mexico such differences should appear. Accordingly Alvarez from the University of Chicago and Johnson from the Bartol Institute have been working independently in Mexico City during the past month, and have both reported a definite predominance of the cosmic rays (*Continued on page 346*)



Germeshausen

In experiments in Mexico, described above, to determine the direction from which cosmic rays come, double Geiger counters are used like those in the picture above, designed by Professor Ralph D. Bennett, of Technology's Department of Electrical Engineering



The Art of Examination

Its Place in the Educational Process

BY A. LAWRENCE LOWELL

FROM teachers to committees of the United States Senate, inquisitors are apt to be unpopular with their victims. A generation ago the proceeding was often looked upon in the schools as unnecessary and objectionable. The teacher asserted that he knew how his pupils were doing, and regarded an examination as much like an indictment — a thing not to be used against good citizens — and as implying at least a suspicion of misconduct. As recently as 1926 Professor Grover T. Somers made some investigations on the attitude toward examinations of students and teachers in schools and colleges, and discovered that both bodies disliked them and thought them of little value. This is not unnatural; for examinations of that kind are given mainly for purposes of discipline — that is, to see whether the pupil has really done his work, the exact rating of individuals being of less importance. Now discipline and all its methods are obviously unpopular both with those who employ and those subjected to them. Moreover, the value of examinations conducted as discipline depends on the difficulty of evasion; and the offense of trying by various illicit means to circumvent or impose upon the examiner is not always regarded by youth as partaking of mortal sin. To pass the examination without possessing the knowledge it is intended to require is sometimes regarded as more clever than wrong.

Another object in examinations — that of measurement rather than discipline — has lately become prominent. The increasing number of applicants for higher education, the conviction that too many college students benefit little from their instruction, a desire for a better

criterion of what we are trying to do and how well we are doing it have caused a greatly increased interest in tests of ability, of attainment, and of promising qualities. Of course every examination partakes somewhat of the nature of discipline and somewhat of that of measurement; but the primary object and the emphasis may be very different, and the large amount of recent study and experiment in examinations would never have been made with a mere view of discipline. It has arisen from a feeling of the practical need for accurate measurement of the quality and prospects of young students. Its value depends on its accuracy, and although no examination can be perfectly fair, the object is to make it as objective and unbiased as possible.

One of the chief causes of uncertain results in examinations comes from the personal judgment of the examiner. To eliminate this, resort has been had to questions susceptible of answers absolutely right or wrong, which can be marked and graded by anyone who has the key. That such tests are highly valuable there can be no doubt; but what they actually measure, and how accurate they are, remains to be proved. In their nature they give little scope for fine discrimination, or the display of careful reasoning on the part of the person examined. They are based largely on speed and give little time for thought.

There is a third function of examinations, where the main object is neither discipline nor measurement, but education; and that aspect of the matter has not hitherto been much discussed. I hope I may be pardoned if I draw illustrations from things under my own observation where I can speak with (Continued on page 347)

THE ENGINEERING COUNCIL GROUP

6 National

AM. SOC. OF CIVIL ENGRS.
AM. SOC. OF MECH. ENGRS.
AM. INST. OF ELECTRICAL ENGRS.
SOC. FOR THE PROMOTION OF ENGINEERING EDUCATION
AM. INST. OF CONSULTING ENGRS.
AM. SOC. OF AGRICULTURAL ENGRS.

5 State

INDIANA ENGINEERING SOC.
IOWA ENGINEERING SOC.
KANSAS ENGINEERING SOC.
VERMONT ENGINEERING SOC.
COLORADO ENG. COUNCIL

13 Local

DETROIT ENG. SOC.
DULUTH ENGRS.' CLUB
ENGRS.' AND ARCHITECTS' CLUB OF LOUISVILLE
ENG. SOC. OF YORK
ENGRS.' CLUB OF CINCINNATI
ENGRS.' CLUB OF COLUMBUS
ENGRS.' SOC. OF MILWAUKEE
GRAND RAPIDS ENGINEERING SOC.
MOHAWK VALLEY ENGRS.' CLUB
LITTLE ROCK ENGRS.' CLUB
TECHNICAL CLUB OF DALLAS
TOPEKA ENGRS.' CLUB
WASHINGTON SOC. OF ENGRS.

AMERICAN ENGINEERING COUNCIL

To further the public welfare wherever technical and engineering knowledge and experience are involved, and to consider and act upon matters of common concern to the engineering and allied technical professions. Formed in 1920 as the Federated American Engineering Societies. Name changed in 1924 to present title. Its 24 member societies have a combined roster of 60,000.

Engineering Societies

Their Multiplicity, Their Relatives, Their Duplication

BY THE REVIEW STAFF

ALTHOUGH Americans have long been reputed to be a nation of "joiners," it is still a startling fact that there has been perpetrated, on the average, nearly one new association, council, institute, organization, or society representing some branch or branches of engineering or applied science for each intervening year between 1848 and 1933. The statement holds water even if we consider only those bodies which have, at some time in history, assumed the aspect of national rather than sectional importance, and if we disregard those which failed to survive the rigors of the three-quarters of a century period during which engineering and technology evolved almost beyond recognition.

In 1848, when the Boston Society of Civil Engineers was founded, there were but six colleges in the United States giving engineering instruction. There were no railways west of the Mississippi, and but 8,000 miles of track in the whole country. The telegraph was still a toy, and electric lights a pipe dream.

To trace any definitive "family tree" of American engineering societies is next to impossible, for their genealogy, even in a sketchy sense, presents a complexity which is baffling. Some are legitimate descendants from early scientific ancestors, while others resemble Topsy — they just grew. It is possible to distinguish

some of the pioneers as being of pure stock. That is to say, they came into being and have been in existence primarily for the advancement of engineering. But others have mixed blood. In some, trade strains are apparent, and some are involved with related sciences or unrelated (though often worthy) purposes. It is thus quickly discernible that any "family tree" would take on the aspect of being a "forest."

So, in a spirit of timber cruising, The Review Staff has undertaken to search out and sort into some semblance of order what seem to be the main sturdy and stately landmarks of this "forest." Chronology has been the primary basis of rearrangement, and the attempt has been made to make the comprehensive list which appears on Pages 332 and 333 inclusive in its nature. Perhaps some soft wood species have crept in and these the reader may disregard according to his liking.

In a spirit of fairness, he should recognize that the compilation has been made after examination of a number of societies, including approximately 900 titles recognized by the National Research Council in the *Handbook of Scientific and Technical Societies and Institutions* which it issued as recently as May, 1930.

Close inspection of this welter of engineering and technological organizations reveals two well defined and

influential groups. One of these, as outlined in the box below, consists of the Founder Engineering Societies and three other independent organizations which have joined the Founder Societies in the formation of the Engineers' Council for Professional Development, but are in no other way related administratively or financially. The Engineering Council group, as outlined at the top of page 330, including as it does six national, five state, and 13 local engineering societies, is perhaps best described by its original name: "The Federated American Engineering Societies." It serves to give the engineering profession a voice in Washington and to place at the disposal of the government enlightened engineering counsel. In no way in competition with the Founder Societies group, it represents simply a regrouping of the engineering societies to espouse the cause of engineering as a profession, and to render public service. The Founder Societies have a technical drive and cultivate development of technique of the engineering branches they represent. Toward this end, they publish elaborate and well-edited technical journals; maintain a free public engineering library; and occupy and manage the engineering societies building given by Andrew Carnegie.

Last fall, the Founder Societies together with the three other engineering groups definitely widened the

scope of their activities through the formation of the Engineers' Council for Professional Development (see The Review for January, 1932, p. 132) — a council which in many ways overlaps in its aims with an earlier and entirely separate organization, The American Association of Engineers, founded in 1915 and devoted solely to the social and economic problems of the engineer. The A. A. E. does not concern itself with technical matters as do the four Founder Societies. Under the slogan "Proper recognition to the engineer and the engineering profession" it has been active in the registration movement; awards the Claussen gold medal for "distinguished service for the welfare of the engineer, social and economic"; provides group insurance for its members; and in general models its activities after the American Bar and Medical Associations. It has recently interested itself very actively in vocational guidance and has published a book entitled "Vocational Guidance in Engineering Lines."

IN A TIME when people are more inclined to ask themselves, "Ought there to be?" a society for this or that, instead of to exclaim "There ought to be!" a society for this or that, the study has not been without its by-products. It is curious to (Continued on page 350)

THE FOUNDER SOCIETIES GROUP

AM. SOC. OF CIVIL
ENGRS. (1852)

AM. INST. OF MINING AND
METALLURGICAL ENGRS. (1871)

AM. SOC. OF MECH. ENGRS.
(1880)

AM. INST. OF ELECTRICAL ENGRS.
(1884)

UNITED ENGINEERING TRUSTEES, INC.

The successor, by change of name only, to Engineering Foundation, Inc., formerly the United Engineering Society (founded 1904), is a corporation whose charter gives it broad powers for the advancement of the engineering arts and sciences in all their branches, including the maintenance of a free public engineering library. It has three departments.

ENGINEERING FOUNDATION

Founded 1914 by Ambrose Swasey "for the furtherance of research in science and engineering, or for the advancement in any other manner of the profession of engineering and the good of mankind."

ADMINISTRATIVE DEPT.

Manages Engineering Societies Building (gift of Andrew Carnegie in 1904), headquarters for more than a score of engineering organizations, and all trust funds under the direction of the Board of Trustees.

ENGINEERING SOCIETIES LIBRARY

Joint library of the A. S. C. E., A. I. M. E., A. S. M. E. and A. I. E. E. Contains over 130,000 books and pamphlets, and 6,300 maps. Receives regularly 1,700 technical periodicals in 18 languages.

AM. INST. OF CHEMICAL
ENGRS. (1908)

SOC. FOR THE PROMO-
TION OF ENG. EDUCA-
TION (1893)

NATIONAL COUNCIL OF
STATE BOARDS OF EN-
GINEERING EXAMINERS
(1920)

ENGINEERS' COUNCIL FOR PROFESSIONAL DEVELOPMENT (1932)

"Aims to coordinate and promote efforts and aspirations directed toward higher professional standards of education and practice, greater solidarity of the profession, and greater effectiveness in dealing with technical, social and economic problems." It has for an "immediate objective . . . the development of a system whereby the progress of the young engineer toward professional standing can be recognized by the public, by the profession, and by the man himself, through the development of technical and other qualifications which will enable him to meet minimum professional standards."

CHRONOLOGY OF AMERICAN PROFESSIONAL ENGINEERING ORGANIZATIONS AND RELATED BODIES

- 1727 — AM. PHILOSOPHICAL SOC. Held at Philadelphia for Promoting Useful Knowledge — Object: The promotion of useful knowledge. Originated in Franklin's "Junto", a club of scientific men formed in 1727 and formally organized under the name of the Am. Philosophical Soc. in 1743. United January 2, 1769, with the old Junto (which had still maintained its existence and whose ends and views were the same) under present title. Incorporated March 15, 1780
- 1780 — AM. ACADEMY OF ARTS AND SCIENCES — To cultivate every art and science which may tend to advance the interest, honor, dignity, and happiness of a free, independent, and virtuous people. The Commonwealth of Massachusetts granted it a charter May 4, 1780, while the Revolutionary War was in progress, and among its charter members were John and Samuel Adams, Samuel Mather, and John Hancock
- 1812 — ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA — Cultivation and study of the natural sciences by original research, by collecting natural objects, by the publication of discoveries, by a library, and by other appropriate means. Instituted March 21, 1812; incorporated March 24, 1817
- 1824 — FRANKLIN INSTITUTE OF THE STATE OF PENNSYLVANIA FOR THE PROMOTION OF THE MECHANIC ARTS — The promotion and encouragement of manufacturing and of the mechanical and useful arts; evaluation of inventions and recognition of inventors; maintenance and advancement of research in the physical sciences. Founded February 5 and incorporated March 3, 1824
- 1839 — AM. STATISTICAL ASSOC. — To further interest in and knowledge of statistics
- 1846 — SMITHSONIAN INSTITUTION — The increase and diffusion of knowledge among men. Founded by Act of Congress approved August 10, 1846, in accordance with the bequest of James Smithson of London, England
- 1848 — AM. ASSOC. FOR THE ADVANCEMENT OF SCIENCE — To promote intercourse among those who are cultivating science in different parts of America, to cooperate with other scientific societies and institutions, to give a stronger and more general impulse and more systematic direction to scientific research, and to procure for the labors of scientific men increased facilities and a wider usefulness. Founded in 1848 in pursuance of a resolution adopted at Boston, September, 1847, by the Assoc. of Am. Geologists and Naturalists to resolve itself into the A.A.A.S. Incorporated March, 1874
- 1848 — BOSTON SOC. OF CIVIL ENGRS. — Professional improvement of its members, encouragement of social intercourse among engineers and men of practical science, and advancement of engineering. Organized July 3, 1848; incorporated April 24, 1851

Professional Engineering Bodies

Semi-Professional Bodies: those formed to further a special purpose or research, or the interests of a particular industry or industries

Some of the Scientific or Professional Bodies having a close relationship to engineering

- 1852 — AM. SOC. OF CIVIL ENGRS., First of the "Founder Societies", instituted November 5, 1852; incorporated April 17, 1877
- 1857 — AM. INST. OF ARCHITECTS
- 1863 — NATIONAL ACADEMY OF SCIENCES; to advance science, and especially to investigate, examine, experiment and report on any subject of science or art whenever called upon by any department of the Government of the United States. Incorporated by Act of Congress and approved by President Abraham Lincoln, March 3, 1863. Organization completed April 22, 1863
- 1869 — WESTERN SOC. OF ENGRS., organized in 1869 as the Civil Engineers Club of the North-West
- 1871 — AM. INST. OF MINING AND METALLURGICAL ENGRS., Second of the "Founder Societies", organized May 17, 1871, as the Am. Inst. of Mining Engrs. Name changed June 18, 1919, to present title
- 1880 — AM. SOC. OF MECHANICAL ENGRS., Third of the "Founder Societies", organized 1880; incorporated 1881
- 1881 — AM. WATERWORKS ASSOC.
- 1882 — AM. ELECTRIC RY. ASSOC.
- 1884 — AM. INST. OF ELECTRICAL ENGRS., Fourth and last of the "Founder Societies", founded 1884; incorporated 1896
- 1886 — AM. ORDER OF STEAM ENGRS.
- 1886 — AM. RY. ASSOC.
- 1888 — AM. SOC. OF NAVAL ENGRS.
- 1891 — AM. RY. BRIDGE AND BUILDING ASSOC.
- 1893 — SOC. FOR THE PROMOTION OF ENGINEERING EDUCATION
- 1893 — SOC. OF NAVAL ARCHITECTS AND MARINE ENGRS.
- 1894 — SOC. OF CHEMICAL INDUSTRY, AM. SECTION
- 1895 — AM. SOC. OF HEATING AND VENTILATING ENGRS.
- 1896 — AM. FOUNDRYMEN'S ASSOC.
- 1898 — AM. MINING CONGRESS
- 1899 — AM. CERAMIC SOC.
- 1899 — AM. RY. ENGINEERING ASSOC.
- 1888 — AM. MATHEMATICAL SOC.
- 1888 — GEOLOGICAL SOC. OF AM.
- 1899 — AM. ASTRONOMICAL SOC.
- 1899 — AM. PHYSICAL SOC.

- 1902 — AM. ELECTROCHEMICAL SOC.
 1904 — AM. SOC. OF REFRIGERATING ENGRS.
 1904 — UNITED ENGINEERING TRUSTEES, INC. (See page 331)
 1904 — SOC. OF AUTOMOTIVE ENGRS.
 1906 — ILLUMINATING ENGR. SOC.
 1908 — AM. INST. OF CHEMICAL ENGRS.
- 1902 — AM. SOC. OF LANDSCAPE ARCHITECTS
 1899 — SOC. OF AM. BACTERIOLOGISTS
 1903 — AM. LEATHER CHEMISTS ASSOC.
- 1906 — AM. SOC. OF BIOLOGICAL CHEMISTS
 1907 — SEISMOLOGICAL SOC. OF AM.
- 1905 — AM. CONCRETE INST.
 1905 — AM. WOOD PRESERVERS ASSOC.
- 1907 — ASSOC. OF IRON AND STEEL ELECTRICAL ENGRS.
- 1908 — AM. IRON AND STEEL INST.
 1908 — MINING AND METALLURGICAL SOC. OF AM.
- 1910 — AM. INST. OF REFRIGERATION
- 1913 — AM. INST. OF CONSULTING ENGRS., INC.
 1914 — ENGINEERING FOUNDATION (See page 331)
 1915 — AM. ASSOC. OF ENGRS., devoted to the professional (as distinguished from the technical) interest of engineers. It aims "to accomplish for the unity, welfare, standards, and public recognition of the engineering professional what such professional organizations as the American Bar Association and the American Medical Association have accomplished for their respective professions."
- 1915 — NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS
 1916 — METRIC ASSOC.
- 1916 — NATIONAL RESEARCH COUNCIL, the promotion of research in the physical and biological sciences, and the encouragement of the application and dissemination of scientific knowledge for the benefit of the nation. Organized at the request of President Woodrow Wilson by the National Academy of Sciences, under its Congressional charter, as a measure of national preparedness, and continued as a permanent organization after the War in accord with Executive Order of May 11, 1918
 1916 — SOC. OF MOTION PICTURE ENGRS.
 1917 — SOC. OF INDUSTRIAL ENGRS.
- 1917 — SOC. OF TERMINAL ENGRS.
 1918 — AM. GAS ASSOC.
 1918 — AM. ZINC INST., INC.
 1918 — ASSOCIATED GENERAL CONTRACTORS OF AM.
 1919 — AM. PETROLEUM INST.
 1919 — AM. WELDING SOC.
 1919 — THE ASPHALT INST.
 1919 — SOC. OF AM. MILITARY ENGRS.
 1920 — AM. SOC. FOR STEEL TREATING
 1920 — AM. ENGINEERING COUNCIL (See page 330)
 1920 — NATIONAL COUNCIL OF STATE BOARDS OF ENGINEERING EXAMINERS
 1921 — AM. INST. OF STEEL CONSTRUCTION, INC.
 1921 — AM. SPECIFICATION INST.
 1922 — AM. CONSTRUCTION COUNCIL
 1922 — NATIONAL AERONAUTICAL ASSOCIATION OF THE U. S. A.
- 1919 — AM. METEOROLOGICAL SOC.
 1919 — MINERALOGICAL SOC. OF AM.
- 1920 — SOC. OF ECONOMIC GEOLOGISTS
 1921 — UNION OF AM. BIOLOGICAL SOCIETIES
- 1923 — AM. INST. OF CHEMISTS
 1924 — HISTORY OF SCIENCE SOC.
 1926 — SOC. OF ECONOMIC PALEONTOLOGISTS AND MINERALOGISTS
 1929 — ACOUSTICAL SOC. OF AM.
 1931 — AM. INST. OF PHYSICS
- 1932 — ENGINEERS' COUNCIL FOR PROFESSIONAL DEVELOPMENT (See page 331)
 1933 — AM. FOREST PRODUCTS INDUSTRIES, INC.
 1933 — EDISON ELECTRIC INST.

THE TREND OF AFFAIRS

IN THIS SECTION: *Engineering Projects of Note* (334); *Machines that Control Machines* (336); *Radium in Engineering* (338); *New Industrial Developments* (339); *For a World Copper Standard* (340); *Weather Observations in the Stratosphere* (340)

Check-List of Engineering Achievements

AMIDSUMMER inventory of current engineering achievements shows ex-Hoover dam still paramount as Project No. 1 in nearly every respect. Its enormous diversion tunnels having been completed nearly a year ahead of schedule, actual pouring of its 3,400,000 cubic yards of concrete began last month, nearly 18 months in advance of the expected date. Now its record-breaking cableway across the Colorado is operating and the plant on the canyon's brim for fabricating its record-breaking 30-foot spillway pipes is nearing completion.

As the world's highest man-made barrier (730 feet), Boulder Dam may be safely expected to command front rank among engineering feats in popular imagination for a long time. However, on the agenda of the first Congress of the International Commission on Large Dams, an organization operating under the World Power Conference, at least three other current dam projects will claim attention. The Congress, incidentally, is meeting in Copenhagen as this number of *The Review* appears and one of the speakers is Professor Glenon Gilboy, '25, of the Institute's Department of Civil and Sanitary Engineering.

The first of these three dam projects is the Mettur on the Cauvery River, about 180 miles southwest of Madras, India. Now nearing completion, it will exceed even the Egyptian Aswan in size, being in length 5,300 feet; in height, above the average bed level of the river, 176 feet; and above the lowest point of its foundations, 230 feet.

Second is the Aswan, itself, now being again raised. Originally, when built some 35 years ago, it was noted even by the serious Baedeker as one of the wonders of the modern world. Work to raise its crest 26 feet was begun in 1907 and finished in 1912. The latest heightening, which adds an extra 30 feet, will be finished this autumn, having taken only three years. Now the drop from the top of the dam to the

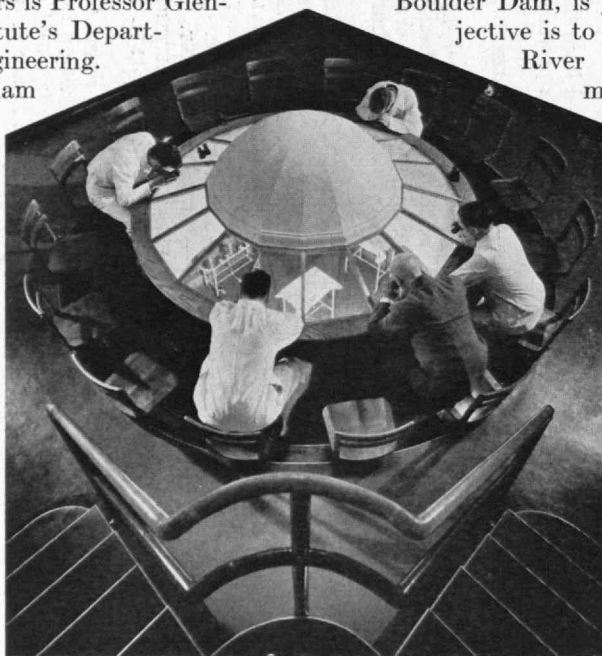
water level below becomes approximately 120 feet, the storage capacity, more than doubled, will be over 5,000,000,000 tons of water, and the level of the Nile will be affected some 200 miles up river as far as the Second Cataract.

The third dam, a somewhat smaller irrigation project in Northern Chile, is one which is to be the largest of its kind in South America. On its construction a force of nearly a thousand men has been laboring nearly four years. It will form an inland lake, 1,250 acres in area, and will impound water sufficient to irrigate 42,500 acres.

If carried through as proposed by the Roosevelt Administration, the variously styled Muscle Shoals, America's "Ruhr," or "Niagara of the South," project will make the Tennessee River valley the seat of the greatest power development and flood control yet attempted in the United States on the grounds of sheer cost and population affected. It will exceed the combined cost of Boulder Dam and the Colorado Aqueduct. Work on the latter, a seven-year venture which, parenthetically, is quite separate from the development at Boulder Dam, is just getting under way. Its objective is to bring water from the Colorado

River across desert wastes and over mountains (there are to be 29 tunnels, including one 13 miles long) to allay the parchings of the present inhabitants and expected extra millions who are supposed to want to settle in Southern California. The sum total cost of these two southwestern projects is expected to be around \$400,000,000, while the bill for the Tennessee venture will come to around 500 or 600 millions. By way of comparison, the investment in the Panama canal stood on the Government's books as \$533,106,000 at the close of the fiscal year on June 30, 1932.

Development in the Tennessee Valley carried out during the War involved the construction of two dams (one, the Wilson, 4,300 feet long, with 90 flood-gates) and nitrate plants at an expenditure of \$150,000,000.



F. S. Lincoln

Unique facility for observation of surgical operations without septic hazards at the new Institute of Ophthalmology (Columbia-Presbyterian Medical Center, New York). The building was designed by George Nichols, '95, formerly with Jas. Gamble Rogers, Inc., architects for the Medical Center. The descriptive remarks are transmitted by a small lapel microphone, worn by the surgeon, to a loud-speaker in the ceiling of the observation room. By use of binoculars, almost microscopic vision is possible to the observers

The present program involves building two more dams, Cove Creek and Joe Wheeler, the first to be the key to flood control, navigation, and power development in the Valley. This Cove Creek dam is to have a height of 225 feet and to back up water in a reservoir with an area of 83 square miles.

Though less quantitatively impressive than the projects enumerated above, others of more than passing significance are to be found in the record of the first six months of 1933. For instance, the towboat *Vicksburg* during June propelled barges loaded with chicle, sisal, and coffee up the 1,230-mile route from New Orleans to Chicago, thus inaugurating commerce via the Lakes-to-Gulf Waterway on which the United States has spent a billion dollars. This month the French President dedicates the new maritime station at Cherbourg on which port's improvement altogether some \$8,000,000 has been expended. In England, an area of about 5,620 square miles now has its supply of electrical energy controlled from one room in Newcastle-on-Tyne, thus completing for the north-eastern section of that country the national "grid" scheme.

Venice is now joined to the mainland by a highway bridge and next fall the tunnels under the Scheldt at Antwerp are to be opened, thus predicating the erection of a new city on the left bank of the river. In Milwaukee a huge 300-ton traveling crane is ready for installation in the first of three power plants below the Diablo Dam not far from Seattle. In Germany are two new giant 10,000-ton forging presses capable of dealing with massive parts up to 250 tons. Though their capacity has previously been surpassed in earlier presses designed solely for bending armour plate, these are adaptable for such work as forging drums for high-pressure boilers, huge turbine drums over 14 feet in diameter and up to 65 feet in length, ship's propeller shafts and guns. In California's Kettleman Hills an oil well last May, after 275 drilling days, sank below the 10,585-foot depth record previously held by a Mexican well and at last reports was still being driven deeper.

The first half of 1933 has also been good to aviation's progress by heavier-than-air craft. Jean Mermoz, French *Aeropostale* pilot, who breakfasted in Africa and dined in South America on a single day in mid-January, carried in

Strip of motion picture film made in the Institute's Biocinema Laboratory showing single-cell animals highly magnified. Moving pictures for health teaching are made in this laboratory

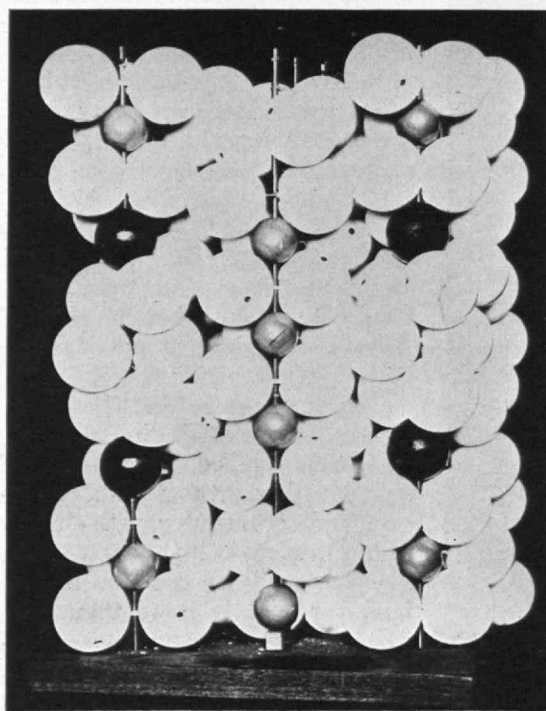
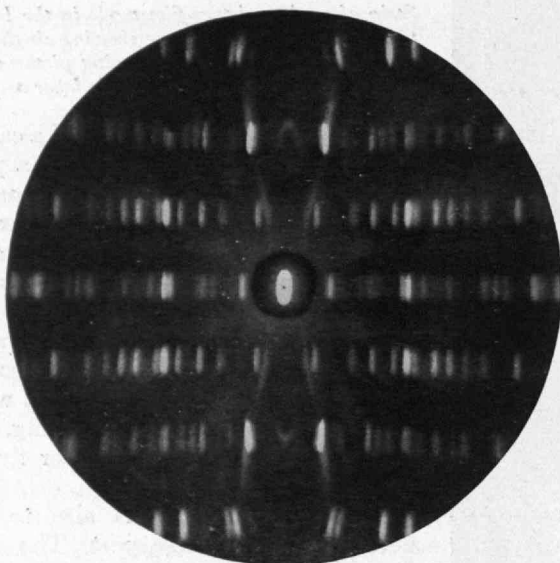


his *Arc-en-Ciel* seven people and a cargo of mail. Thus for the first time a payload was transported in a comparatively small plane across 2,000 miles of sea. Subsequently speed records and those of long-distance, non-stop overland and overwater flight have been shattered; new high marks have been set to improve regular passenger-route schedules; attention has been paid with fruitful results to noise hushing, to slower landing as well as faster flying speeds; to "parasitic drag."

Meanwhile progress is also to be noted in railway transport. The Las Raices Tunnel, Latin America's longest (two and a half miles) has been officially opened to expedite the service over one of the two new lines being built between Santiago and Buenos Aires; throughout the spring months certain European express schedules have been speeded; the *Flying Hamburger* (noted in *The Review* for March) continues to augur well for the future of rail cars; a British Diesel-electric express train has been tried out and is said to have run 1,157 miles in five days at an average fuel cost of 0.68 d. per mile; a reciprocating condensing locomotive (German-built for the Argentine State Railways) has more than fulfilled the specifications of going 600 km. without taking on water, even in desert country, with air temperatures ranging as high as 115° F.; Pullman has made an experimental aluminum car slightly more than half the weight of an ordinary sleeper.

By far the most interesting railway item, however, and one which, if it pans out as expected, may well revolutionize not only the passenger business on the rails, but that by bus and even by airplane, is the Union Pacific's quarter-million dollar, 110-mile-an-hour, stream-lined, light-weight, motor-driven, butane-fueled, three-car, whiz-bang limited. As a publicity move, it's announcement is most timely and if, when it gets beyond the paper stage, it will do half what the U. P.'s press agents hope, the new train ought to get a free ride to Europe and go tourist even as the *Royal Scot*.

So, too, might the new metal street car, built under direction of Dr. C. F. Hirshfeld and sponsored by 25 electric railway systems. Lighter, faster, it may prevent the passing of the street railway.



The circular illustration is from a photograph of an x-ray diffraction pattern of asbestos — an example of the study of bulk material (crystal structure) as carried on by the Institute's Department of Physics. Below the circular cut is shown a large atomic model deduced from the x-ray diffraction photograph

Servo-Mechanisms

By H. L. HAZEN, '24

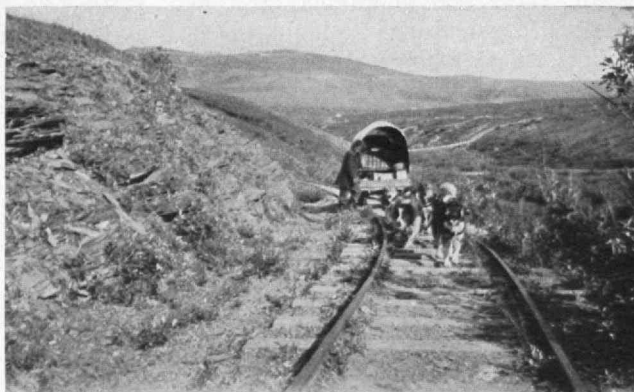
MAN being relatively weak, has made machines do his work, leaving him with the simple task of merely controlling the machines. But he soon is dissatisfied with having to control the machines and wants them to control themselves. As early as 1713, so the story goes, one Humphrey Potter, whose task it was to operate the valves of one of Newcomen's pumping engines, conceived the idea of making the engine operate its own valves, thus rendering its action automatic.

In the same way probably every quartermaster has conceived the idea of making the magnetic compass needle operate the rudder of his ship to hold her on her course. But the compass, though true, is weak, and the wheel is hard to put over, so the helmsman keeps his job. However, by the use of a servo-mechanism which magnifies the very feeble force of the compass until the rudder can be operated by it, automatic steering is a possibility. Servo-mechanisms are employed in numerous other situations in which large forces must be controlled by very delicate indicating or measuring devices. The very sensitive centrifugal governors, used to control the speed of huge water wheels and steam turbines, can operate the large, heavy throttle valves or gates only through intermediary servo-mechanisms. The huge stabilizing gyroscopes for a ship are controlled by very small indicating gyroscopes operating through servo-mechanisms. Similarly servo-mechanisms are used in the stabilization and steering of airplanes, the control of air, fuel, and feed water in power plant boilers to maintain constant steam pressure, in recording instruments, where the indicating element is too weak to drive a pen, and in numerous other applications.

Thus the servo-mechanism takes on somewhat of human properties, in that it is capable of controlling machines. Although it cannot exercise judgment in the sense of basing a decision on incomplete data, it can, in a particular situation, reason logically from given data to the proper control action.

To perform its task properly a servo-mechanism must have several properties. First, it must magnify power or energy, often very greatly. Second, it must respond with a certain minimum rate in any given application. Third, it must not "overshoot" or oscillate excessively, and sometimes not at all. Fourth, it must be sufficiently sensitive to respond definitely to a certain minimum variation of its input.

The question of overshoot, or oscillation, perhaps needs explanation. To illustrate, suppose the compass of a ship were to be fitted with electric contacts so that when the ship is headed off her set course, the rudder is so turned by a servo-mechanism operated by the contacts that the ship is brought back toward her course. Assume that the rudder stays over until the correct course is reached, when the contact is broken and the rudder returns to mid position. But the heavy ship



*U. S. Smelting, Refining & Mining Co.
Casual transportation in the Alaska gold fields. "Dogomobile" on the Seward Peninsula Railroad being driven by Sepalla, famous musher in charge of U. S. S. R. & M. Company's ditch lines*



Standing on Baldpate Hill, Newton, Mass., Fred C. Bowditch, '20, took this picture of Mt. Monadnock, N. H., 53 miles distant from his camera. He used Eastman infrared sensitive plate, a Wratten No. 87 filter, and an exposure of 80 seconds at F32

would still be turning and so go off her course in the opposite direction. Thereupon the compass causes the opposite rudder to be applied until the ship is again on her course. Again she will still be swinging when the proper course is reached so the process would continue indefinitely, and the ship, instead of following a straight course would leave a wake like the path of a giant snake. An ideal servo-mechanism would avoid this action by so anticipating the ship's motion that it would apply just enough rudder, and that at the proper time, so that the ship would be brought back to her course after any deviation, but would not be turned too far, as the simple scheme just outlined would do. This avoidance of continuous overshoot is desirable in nearly all servo-mechanisms.

The ship-steering servo-mechanism can be relatively slow because a ship can be turned only very slowly. For some other applications, however, a very fast servo-mechanism is required. Such, for example, is the case with a calculating machine now being developed in the Electrical Engineering Research Laboratory at the Institute. In this device it is necessary so to control one component of the light entering a photo-electric cell, that the total amount of light, including an arbitrarily varying component, remains constant, and to record continuously the magnitude of the first component. For this purpose a very fast servo-mechanism has been developed which has certain unusual features.

This servo-mechanism, which consists of a small, specially designed, direct-current motor driven by an amplifier controlled by a photo-electric cell, is very fast, and has no tendency to oscillate. An idea of its speed may be obtained from the fact that if the light shining into the photo-electric cell is suddenly changed from one value of brightness to another somewhat different value, the motor requires only about $1/20$ th of a second to correct for and record the change. Thus the light can change rapidly and the servo-mechanism will keep a continuous record.

To secure this unusual performance, analysis showed that the motor must have low inertia (i.e., have very little weight) and yet be relatively very powerful. This

was accomplished by making the iron core of the motor armature stationary, the moving parts consisting only of the copper wire winding, and a brass shell used to support the winding and also to provide "damping." With such construction the motor can be made to accelerate very rapidly on the current delivered by three ordinary radio receiver tubes. The power output of this motor is increased by a mechanical torque amplifier to about one-tenth horse power, or more if required. The non-oscillating feature was secured by making the force tending to restore the motor to its balance or neutral position proportional to the amount by which it is off balance, and by a very careful proportioning of this force in relation to the damping and inertia. As a result, this servo-mechanism approaches the equilibrium point smoothly without going beyond it, or overshooting.

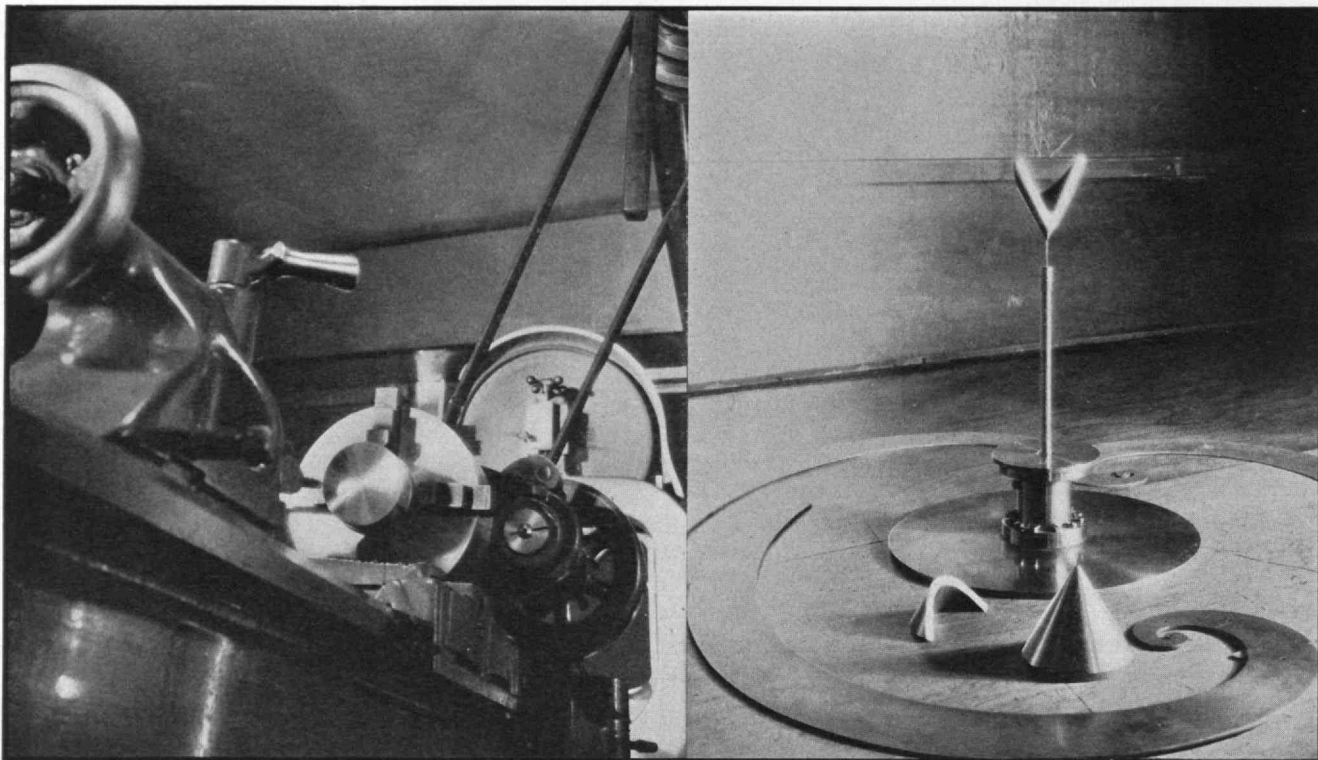
Such a servo-mechanism, combining as it does a high rate of response and no oscillation, has numerous potential applications such as improved automatic boat and airplane steering mechanisms, gyroscopic stabilizers and, in fact, the control and recording of almost any measurable quantities which may vary rapidly and get beyond control unless adjusted very quickly.



The capacity of the water-power plants of the United States and Canada is equal to that of the rest of the world. The total water-wheel capacity in the United States on January 1, 1933 (according to the Geological Survey) was 15,871,941 horse power. It is estimated that water wheels with the capacity of about 80 million horse power would be required to make use of all the water power in the United States.



Colorado Fuel and Iron Company



W. H. Kilham, Jr.

The pictures above and those on the opposite page are made in the machine shop of the Boston artist, Peter Kilham, who finds the machine useful for aesthetic purposes. The view on the right, above, shows various curves and conic sections made by Mr. Kilham. Mr. Kilham employs modern scientific materials in the design of furniture and he bases his designs on geometrical or mathematical principles; believing as he does that geometry is the basis of all the fine arts

Radium in Engineering

RADIUM has been so closely associated with medicine for many years that its industrial applications in the examination of metals have received little attention outside of technical circles. The use of x-rays for the study of the interior of metals by means of photography is comparatively well known. The application of radium or radon, one of the other radioactive elements, in this field, however, has been quietly developing in recent years.

Both x-rays and radium make possible non-destructive tests, an important advantage in almost every branch of engineering in which metal plays a part. X-rays are valuable for examination of steel to a depth of four inches. Beyond that (to a maximum penetration of approximately ten inches) radium is supreme.

Investigation of metals by the x-ray method requires expensive and elaborate equipment, including generators and transformers, which is not easily transported. Radium, on the contrary, is entirely portable, the quantity used being so small that it is carried in a tiny capsule about one-eighth of an inch in diameter and one inch long. Its application is simple, although photographs made by this method require long exposures. These photographs are really shadow pictures, and in them the defects are seen as dark areas on the plate. The defects discovered in such examinations include blow holes, inclusions of slag or oxide, and cracks. In welds, voids due to incomplete fusion of the parts are revealed, while in castings inclusions of sand invariably cast their tell-tale shadows. The smallest defect it

is possible to find is between one and two per cent of the total thickness of the object being studied.

The cost of radium, which is approximately \$70,000 a gram, prohibits its purchase by many laboratories. However, radon in the form of the gas captured in the disintegration of radium may be rented for radiological research at comparatively small expense. The radioactive gas sealed in very small glass "seeds" loses strength rapidly and therefore must be prepared for immediate use.

In making radiograms, as photographs by this method are called, ordinary photographic plates are used, and the exposures range from 20 to 30 hours. In consideration of the physiological danger in handling radium, the greatest care is exercised in its manipulation. The capsule of radium, or the little glass "seed" of the radioactive gas, is transported in a lead cylinder and with it come special tongs for handling the containers.

The value of the radium as a non-destructive method of examining metals was demonstrated recently when it was discovered that the stern posts of one of a series of ships just completed was defective. Examination of the posts of all the vessels, which had already been launched, was indicated. To make a radiographic examination, it was only necessary to send down a diver, who fixed a capsule of radium on one side of the suspected part and a photographic plate in a water-tight container on the opposite side. A series of such photographs clearly revealed defects in other vessels.

During the past year Professor John T. Norton, '18, of the Department of Mining and Metallurgy, has been making a study of the radium method of examining

metals. In this investigation he has been especially interested in perfecting the technique of radiological procedure, including investigation of the factors which enter into exposure, depth of penetration, determination of the smallest defect to be found, and interpretation of photographs. He has found that in photography of metals to depths of four inches, the x-ray method produces the best results.

The United States Navy now has a supply of radium which is made available to all navy yards for radiological research, and with an increase in the world's supply of this precious substance, its use in industrial research is expected to increase.

▲

Two thousand years ago the University of Alexandria segregated its different faculties of learning by placing them in descending order of merit at various levels in its building. Chemistry, it is reported, was in the basement. What would be in the basement today?

▲

Potpourri

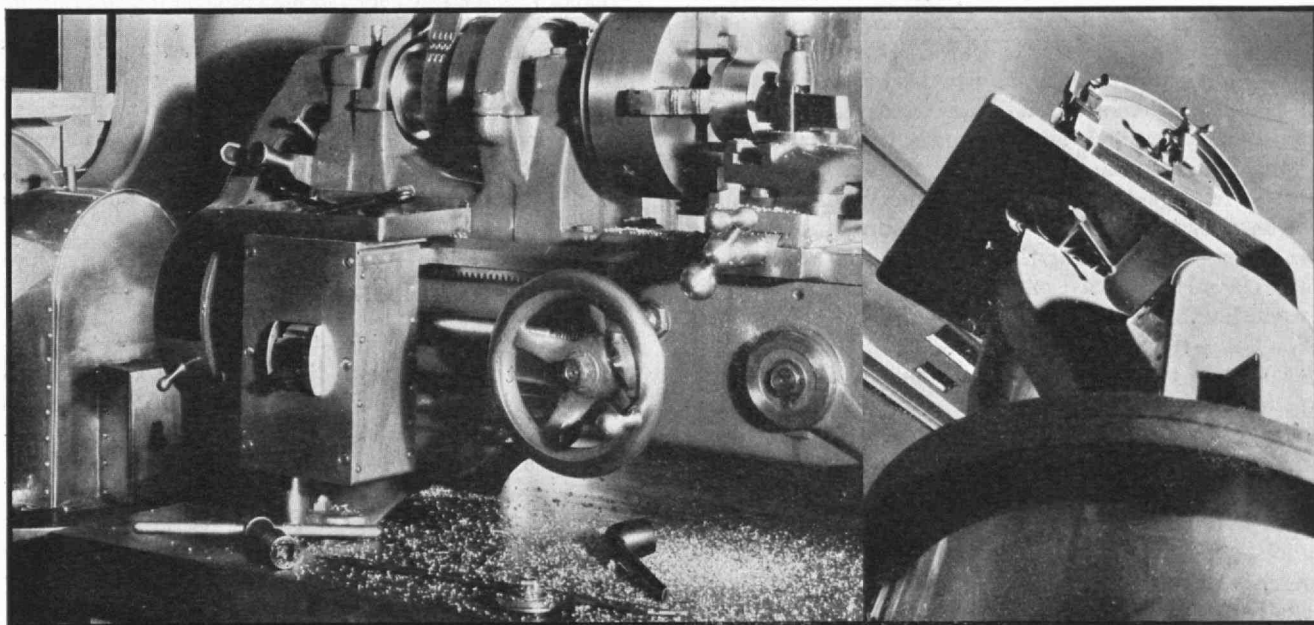
"SCIENCE," says Max Planck, "does not mean contemplative rest in possession of sure knowledge; it means untiring work and steadily advancing development." Some evidences of the steadily advancing development of applied science:

1. **RADIO CONTROLLED DOORS.** The Messrs. Barber-Colman Company offer equipment which enables drivers to open and close garage doors and to turn garage lights off and on from inside a moving automobile. Contrary to what most people think, the radio door makes no use of the "electric eye" or photo-electric cell, or of any devices which respond to a toot of the horn or other noise. Instead, a small automatic radio transmitter in the car broadcasts a code signal which is picked up by an automatic analyzing receiver in the

garage. There is a special code for each garage so that no one can get into anyone else's garage, and also so that a single electric impulse, such as a flash of lightning, cannot open the door. By pulling a knob on the instrument board of the car while approaching the garage, the driver sends the signal and the doors open. When the knob is pulled again, the doors close. The transmitter of the radio control is sufficiently strong to take effect at any distance up to 100 or 125 feet away from the receiver, providing the car is straddling the buried receiving antenna.

2. **NEW FLOORING MATERIAL.** A flooring concrete, laboratory-mixed for uniformity, is now available in a wide range of colors under the name of Maximent. Nearly round silica aggregate is dried to constant weight and screened through the standard sieves. The component sizes are then recombined and added to cement by weight. After a thorough mixing it is placed in 100-pound, waterproof sacks and closed tightly. By mixing Maximent in the laboratory, a concrete floor of uniform hardness to withstand heavy wear is obtained. This eliminates the former weakness of floors with soft spots adjacent to hard spots with the resultant maximum of shock at the weakest point.

3. **TIMBER CONNECTORS.** American Forest Products Industries, Inc., has established the Timber Engineering Company for acquiring and holding the American rights to the basic patents underlying the "connector" systems of wood construction lately developed in Europe. In a recent letter Dr. Wilson Compton said: "We regard this new connector system of construction as the most significant and promising development in the timber construction field in this century. Foreign experience, confirmed by extensive tests using American woods, shows that the use of the most efficient of these connector systems increases the useful strength of structure, on the average, to 2.4 times; and in some important types of structure as much as six times. This obviously opens a wide field, not only for improved economy in timber construction, but for much greater



W. H. Kilham, Jr.



Science Service — Cornelia Clark

Who can guess what the above objects are? Only a zoölogist might. They are spider's eggs, magnified from the size of pinheads

flexibility in structural design and for the use of timber construction for a wide range of purposes for which heretofore in this country it has not been widely regarded as serviceable or satisfactory."

4. DE-AIRED CLAY. Ceramics, one of the oldest crafts, is one of the youngest technologies; only in recent years has science entered the pottery or the kiln, but the results have come swiftly. As an illustration in point, new experiments in the withdrawal of air from stiff mud bodies have pointed the way to better clay products. It has been demonstrated that evacuation of air increases the strength and improves the appearance of wares. It makes the highly plastic clays easier to handle and it renders those of low plasticity comparable in workability to superior clays under normal, established processes. Tests reveal that the crushing strength of fired clays is increased on an average of about 20% by evacuation.

5. GRID-WOOD. French woodworkers have devised a new system of panel construction called "Rezo" which has been patented and is about to be marketed in this country. It starts with standard wooden strips notched and interlocked to form a grid of the desired dimensions. This framework is covered with plywood and veneer to make doors, partitions, and tabletops that are almost proof against warping. Originated for doors in French merchant ships, "Rezo" is especially adaptable to the construction of modern furniture.

6. VINYL RESINS. At the Chicago Exposition there is a three-room apartment constructed and finished in the new vinyl synthetic resin. The walls, doors, floors, electric fixtures, windows, shaving cream tubes, cups, saucers — all are made of the material. Vinylite is made by polymerization of various vinyl compounds.

▲

Langmuir has developed methods of measurement which will detect one atom of caesium in a cubic meter of space — a feat comparable to detecting the presence of one small fly in a hollow sphere the size of the earth.

▲

Scientists to Urge Copper Standard at World Conference

WHILE statesmen battle over the monetary standards of the world at the London Economic Conference and argue the relative merits of gold, silver, and platinum, scientists have been quietly preparing for another battle of the metals. But instead of supplanting the gold standard, they are planning an attack on the iron standard.

An international conference is to be held at the Institute this summer, at which spectroscopists from this country and abroad will meet to discuss what to do about standards of spectra. Physicists, chemists,

and astronomers, who use the spectroscope as one of their principal tools of research, have for many years used the spectrum lines emitted by iron atoms as their standard of wave length. Now, however, advances in technique, especially with the invisible ultraviolet rays, have made these inadequate, and one group of workers expects to champion the cause of copper atoms as emitters of standard wave lengths.

The conference is to be held in the new spectroscopy laboratory of the Institute beginning July 17. Separate sessions of the conference will be devoted to applications of the spectroscope, which has been called the most powerful tool available to physical science, to astronomy, biology, medicine, metallurgy, chemistry, and atomic structure.

Higher into the Stratosphere

PLANS for further investigation of the stratosphere at great altitudes were discussed by Professor Jacob Bjerknes of the Geophysical Institute of Bergen, Norway, during a visit to the Institute's Division of Meteorology in June.

Professor Bjerknes represents the third generation of a distinguished Norwegian family of physicists and geophysicists. With his father, V. Bjerknes of Oslo, he is the creator of the polar front theory, which now dominates the development of (Continued on page 352)

THE INSTITUTE GAZETTE

Commencement

AT THE Institute's 66th Graduation Exercises, held on the morning of June 6 at Symphony Hall, President Compton formally created 423 new bachelors and 146 masters of science; 22 bachelors and 7 masters in architecture; and 10 and 17 doctors of philosophy and science, respectively. He also awarded 7 certificates in public health; made public the names of 12 Fellows of the Institute for the coming academic year; announced the names of the winners of the Stratton and other prizes; counseled the graduating class that, "taken as a whole, those classes which graduated during or soon after periods of business depression have been outstandingly successful"; bade them Godspeed.

Besides Dr. A. Lawrence Lowell, Life Member of the Technology Corporation and retiring President of Harvard University, whose Commencement oration appears on page 329, brief addresses were delivered by Rear Admiral George H. Rock, Ret., and Major General Fox Conner.

In addition to the speakers, members of the Corporation, and Faculty among those seated upon the platform were: Reverend Dan H. Fenn, of the First Church in Chestnut Hill, who offered the invocation; Mayors James M. Curley of Boston and Richard M. Russell of Cambridge; Dr. Allan Winter Rowe, '01, President of the Alumni Association; Colonel Alexander Macomber, '07, Chief Marshal; and 12 members of the class of 1883, met to celebrate their Fiftieth Reunion.

Eight of the Fellows for 1933-1934 received their awards "in recognition of high scholastic attainment and ability in the field of research," as follows: H. W. Anderson, '31, in Electrical Engineering (James Savage Fellow); M. Benedict, G, in Physical Chemistry; W. J. Cope, G., in Mechanical Engineering (Henry Saltonstall Fellow); M. B. Ferar, '32, Traveling Fellow in Architecture; J. B. Fisk, '31, in Physics (Redfield Proctor Traveling Fellow); E. B. Hershberg, '29, in Chemistry (Moore Traveling Fellow); C. H. Norris, '32, in Civil Engineering (William Sumner Bolles Fellow); H. G. Schwarz, G., in Metallurgy.

Four fellowships were given "in recognition of high scholastic attainment . . . to students pursuing graduate work leading to the doctor's or master's degree." They were: J. P. Elting, '31, and J. Millman, '32, of the Department of Physics, the Sloan Automotive Engineering and Susan H. Swett Fellowships, respectively; R. Dillon, '33, and P. Lobdell, '33, of the Department of Chemical Engineering, the Frank Hall Thorp and Louis Francisco Verges Fellowships, respectively.

The Stratton [Samuel Wesley] Prizes, established in 1930-1931 as a competition open to members of the Undergraduate Professional Societies "to encourage and aid young men in the arts of skillful preparation and effective presentation of scientific papers," have been continued annually since his death through a fund es-

tablished to perpetuate the memory of his deep interest in student welfare. This year over 40 undergraduates participated in the competition, the winners and the titles of their papers being: first, M. D. Millard, '33, "The Photo-electric Cell;" second, R. L. Kengott, '34, "Wireless Transmission of Power;" third, R. P. Holland, Jr., '34, "Wings."

The Roger DeFriez Hunneman Prize "for outstanding originality in the field of Chemical Engineering" was awarded to L. W. Moore, '33, and D. L. Babcock, '33, received the American Bureau of Shipping Prize for highest scholarship in Naval Architecture and Marine Engineering.

Prizes awarded in the School of Architecture were: to W. H. Brown, '33, the Rotch and Summer Sketch, and the American Institute of Architects' Medal; to M. E. McConnell, '33, the Freehand Drawing; to Mr. McConnell and Miss Hazel Weld, '33, the Boston Society of Architects'; to J. W. Mihnos, '33, the Fontainebleau and the Second F. W. Chandler; to F. D. Petrie, '33, the Third F. W. Chandler; to J. E. B. Walker, G, the Chamberlain.

352 Years Finished

JUNE each year brings the Corporation's annual announcement of personnel changes at the Institute. This year's list records the retirement of nine distinguished members of the staff whose combined terms of

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service at Technology total 352 years. The names of two of these, Dr. DAVIS R. DEWEY (47 years) and WALDEMAR LINDGREN (25 years) were published in the May Review; the remaining seven are:

WILLIAM HOVGAARD, Professor of Naval Design and Construction. He was born in Denmark and educated at the Naval Academy in Copenhagen and at the School of Naval Architecture at the Royal Naval College at Greenwich, England, from which he was graduated in 1886. In 1898 he was promoted to the rank of commander in the Danish Navy and in 1901 he came to the United States and to the Institute. By virtue of his work here, he has become internationally famous and has been a consultant to the United States Navy.

ROBERT P. BIGELOW, Professor of Zoölogy and Parasitology. After graduating from Harvard University in 1887 and obtaining his Ph.D. at Johns Hopkins in 1892, he became an instructor at the Institute in 1893. He has been known to generations of Technology students as an inspiring teacher.

JOHN O. SUMNER, Professor of Architectural History. On graduating from Harvard University in 1887, he came to Technology in 1894 as an instructor in history in the Department of Architecture. His subject, "European Civilization and Art," has been one of the most famous courses ever given by the Institute.

WILLIAM F. BROWN, Professor of Freehand Drawing. He was educated at the Ecole des Beaux Arts and joined the staff at the Institute after completing his work there. A great teacher, closely identified with the success of Technology's Department of Architecture.

C. HOWARD WALKER, Special Lecturer on the Philosophy of Architecture and the History of Renaissance Art. He first began lecturing on decoration in the Department of Architecture in 1884.

ERVIN KENISON, Associate Professor of Drawing and Descriptive Geometry. After graduating from Technology in 1893, he joined the staff as instructor and has been active in the division of drawing ever since.

WILLIAM A. JOHNSTON, Professor of Theoretical and Applied Mechanics. After graduating from Technology in 1892, he joined the staff of the Department of Mechanical Engineering. The textbook prepared by him and Professor Charles E. Fuller, '92, is a classic in the field of applied mechanics.

Of these Messrs. Hovgaard, Bigelow, Kenison, Brown, Dewey, Lindgren, Sumner, and Johnston will have the title of Professor Emeritus, while Drs. Dewey, Lindgren, Hovgaard, and Bigelow will be honorary lecturers at the Institute for 1932-1933.

FRIENDS of the late William P. Ryan, '18, have organized a committee to receive contributions for the establishment of a fund, the income from which will be used to assist graduate chemical engineering students at the Massachusetts Institute of Technology and will be known as the "William P. Ryan Memorial Scholarship." The committee includes: Bradley Dewey, '09, Chairman; Lauren B. Hitchcock, '20, Secretary (34 Hillside Terrace, Belmont, Mass.; Tel. Belmont 1856-M); Allan W. Rowe, '01, Treasurer (80 East Concord Street, Boston). Checks should be made payable to the Treasurer.

Years to Go

APPOINTMENTS on the Corporation's June list included three announced in the last Review (Professor HERVEY W. SHIMER as Acting Head of the Department of Geology, Professor RALPH E. FREEMAN as Acting Head of the Department of Economics, and Professor CHARLES B. BREED, '97, as Acting Head of the Department of Civil Engineering) and in addition, the following:

HENRY E. ROSSELL, '15, succeeds Professor Hovgaard as Head of the Course in Naval Construction. He is a graduate of the U. S. Naval Academy and holds the rank of Commander in the Construction Corps. He has been a member of the Department of Naval Architecture and Marine Engineering since 1931.

LAWRENCE B. ANDERSON, '30, succeeds Jacques Carlu, Professor of Architectural Design, who has recently returned to France, where he is Director of the Fontainebleau School of Fine Arts.

Sir RAYMOND UNWIN, distinguished British authority on city planning, has been appointed a lecturer in the Department of Architecture, and JAMES FORD CLAPP becomes a lecturer on planning principles in the same department. JOHN L. REID, instructor of Freehand Drawing in the Department of Architecture, has been promoted to the grade of Assistant Professor.

Leaves of absence on the list included two for the next academic year (to C. M. Spofford, '93, and Harold C. Weber, '18) and two for the second term of next year (to A. L. Merrill, '85, and Charles H. Porter, '02).

ALBERT V. SMITH, '20, whose father, Major ALBERT S. SMITH, of Winthrop, was for many years Superintendent of Buildings and Power at Technology and is now retired, has been appointed to succeed his father. JAMES W. MACDONALD, whose years of service at Technology have made him well known to all of the staff, has been appointed Assistant Superintendent.

Professors Ryan and Miller

TO THE total of three heads of departments who will be partially lost to the Institute next year by virtue of retirement or leave of absence must be added the complete loss of two more through death. On June 1 died Professor William P. Ryan, '18, Head of the Department of Chemical Engineering, and on June 12 Professor Edward Furber Miller, '86, Head of the Department of Mechanical Engineering. Retirements may be accepted with equanimity, but losses of such major figures as Professors Ryan and Miller by death have shocked and disturbed the whole Institute community.

Professor Ryan was born in East Medway on March 11, 1895. He received his early education at the Medway High School and at Phillips Academy in Andover. He then entered Technology, was graduated in 1918, and during the War did important and valuable work in the Chemical Warfare Service. He was appointed instructor in chemical engineering in 1920, and in 1921 he was made Director of the Institute's Chemical Engineering Practice Station at Bangor, Maine. The following year he was promoted to the rank of Assistant Professor and was appointed Director of the School of Chemical Engi-



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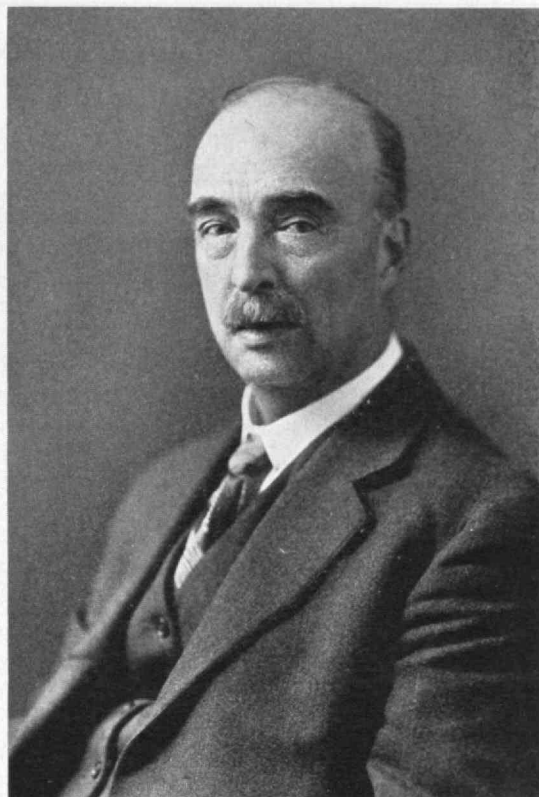
WILLIAM P. RYAN, '18
(March 11, 1895–June 1, 1933)

neering Practice. His promotion to Associate Professor came in 1927 and in 1929 he became Head of the Department of Chemical Engineering. He was a member of the American Institute of Chemical Engineers, the American Gas Association, and the American Chemical Society. In 1932–1933 he served as Chairman of the Northeastern Section of the American Chemical Society.

It is appropriate to quote from a tribute to him published in *The Nucleus* (June) of the Northeastern Section, and written by two of his colleagues, Professors Harold C. Weber, '18, and Warren K. Lewis, '05.

"His influence as departmental head was far reaching and under his guidance both the graduate and undergraduate schools of Chemical Engineering were developed and strengthened. How he was able to direct research, attain an outstanding position as a chemical engineer, maintain widespread industrial contacts, discharge his executive duties, not merely teach, but take the initiative in the development and formulation of educational policy throughout the Institute, help and counsel his students in connection with their personal and financial cares, and still have time fully to enjoy his home, we shall probably never understand. He loved the institution he served and his far-reaching vision enabled him to lay plans for the future of his department which his untimely death will make it impossible for him to direct to fruition. . . .

"His wife, Pauline, and his three daughters, Mary Louise, 9, Patricia, 6, and Kathleen, 3, will mourn his loss, but the richness and fullness of his life and the influence for good he exerted on the lives of all those who knew him must be a store of consolation for them.



M. I. T. Photo

EDWARD F. MILLER, '86
(January 18, 1866–June 12, 1933)

"To all, William P. Ryan was scholar, adviser, friend, and gentleman. His presence brought much to us. His passing leaves a gap which we cannot fill."

PROFESSOR MILLER was born in Somerville on January 18, 1866, the son of William Gibbs and Sarah Furber Miller. He received his early education in the public schools of Cambridge, and was graduated from Technology in the Class of 1886. In 1921 he was awarded the honorary degree of doctor of science by Rhode Island State College. He was married to Miss Mary Willard Reed of Lexington on September 11, 1900.

Professor Miller joined the Institute staff immediately following his graduation, and successive promotions led to his appointment in 1905 as Professor of Steam Engineering. Upon the retirement of Professor Gaetano Lanza in 1911, he became Head of the Department of Mechanical Engineering.

In order to make a first-hand study of systems of engineering instruction in foreign technical schools, Professor Miller in 1904 made a tour of educational centers of England and the Continent.

Under his guidance, this division of the Institute made notable advances in technique and equipment. When, in 1916, the Institute moved from Boston to its present site, Professor Miller was placed in charge of plans for the new laboratories and drafting rooms of his department, which on completion were pronounced among the finest in the country.

An active figure in engineering circles, Professor Miller was a leading member of the American Society of Mechanical Engineers, the Boston Society of Civil

ANNUAL COUNCIL REPORTS IN EPITOME

*Facts Heard at the Annual Meeting of the
Alumni Council on May 22*

••• Council meetings for the year just closed set a high mark for interest and attendance. The seven meetings held drew a total attendance of 571, or 53 more than the record high of last year.

▲

••• During the year 39 alumni clubs were visited, President Karl T. Compton making 13 visits; Dean Vannevar Bush, 6; Director of Admissions, James L. Tryon, 6; Dean Harold E. Lobdell and J. Rhyne Killian, Jr., 11; and Dr. Allan W. Rowe, 31.

▲

••• The income of the Alumni Association as of May 1 (its fiscal year starts with July 1) was \$26,681.94, or about \$6,000 less than last year. Expenses have been reduced to more than offset this loss. Permanent funds held by the Association total \$47,448.77.

▲

••• The number of members of the Association as of May 1 was 16,073 and the total number of living alumni 29,236. Dues-paying members total 5,560, or 20% less than the preceding year.

▲

••• During 1932-1933, 874 men participated in athletics, divided among 16 different sports. Expenditures (1931-1932) of the student-managed Athletic Association totaled \$27,349.53, which was reduced by gate receipts and guarantees to \$19,260.71. Income from undergraduate dues totaled \$18,000.00, which was increased by miscellaneous income of \$690.60 and a surplus carried over from last year of \$1,741.67. Net result of operations to May 31: Cash balance of \$1,171.56.

▲

••• Two of the four undergraduate publications made a profit during 1932-1933, and two commendably small losses. Trust funds administered by the Advisory Council on Undergraduate Publications total \$21,415.80. The honorary journalistic fraternity, Pi Delta Epsilon, has been replaced by the Gridiron, a much larger and more active group. 150 students work on publications.

▲

••• Tech Show was revived in a modest way by an able and interested group of students. Three performances of "Fancy That" were given in Walker Memorial before enthusiastic audiences of about 1,200. Result: \$150 profit.

▲

••• Both the Glee and Instrumental Clubs received excellent coaching and gave creditable performances; notably the two Sunday concerts in Walker Memorial when music of a high order was presented to capacity audiences.

Engineers, the American Society of Civil Engineers, and the American Society of Refrigerating Engineers. He also held an honorary membership in the National Association of Stationary Engineers, and was a life member of the Massachusetts Charitable Mechanics' Association.

During the World War, Professor Miller had charge of the establishment and direction of eight schools, located throughout the country, in which thousands of men were trained as engineer officers for service in the Shipping Board fleet. He also carried on experiments for the United States Army, and following the War was commissioned a Colonel in the Ordnance Reserves. In 1921 he was appointed Dean of Army Officers at Technology, where he was influential in establishing the Ordnance School and the R. O. T. C. unit for undergraduates. He was a former President of the Boston Post of the Army Ordnance Association, and was the first President of the M. I. T. Chapter of the Reserve Officers' Association. Thus he demonstrated constantly that he was an enthusiastic but hard-headed patriot.

Following the death of President Maclaurin of Technology in 1920, Professor Miller served as a member of the Administrative Committee which governed the Institute prior to the inauguration of President Samuel W. Stratton in 1923. In 1921 he was elected Chairman of the Faculty.

Professor Miller was deeply interested in problems of public welfare, and served in various capacities on many boards and commissions appointed by the state for the investigation and regulation of engineering matters. He was an authority in problems of smoke abatement, and his extensive knowledge of steam boilers led to his serving as expert in numerous legal cases.

Professor Miller was the author of a number of volumes on engineering subjects. With Professor Cecil H. Peabody, he wrote in 1897 a treatise on "Steam Boilers," considered one of the leading textbooks in the field. His subsequent works include "Problems in Thermodynamics and Heat-Engineering," with C. W. Berry, '95, and J. C. Riley, '98, published in 1911; "Notes on Power Plant Design," with James Holt, '19, now in its third edition; and "Notes on Heat Engineering," 1931.

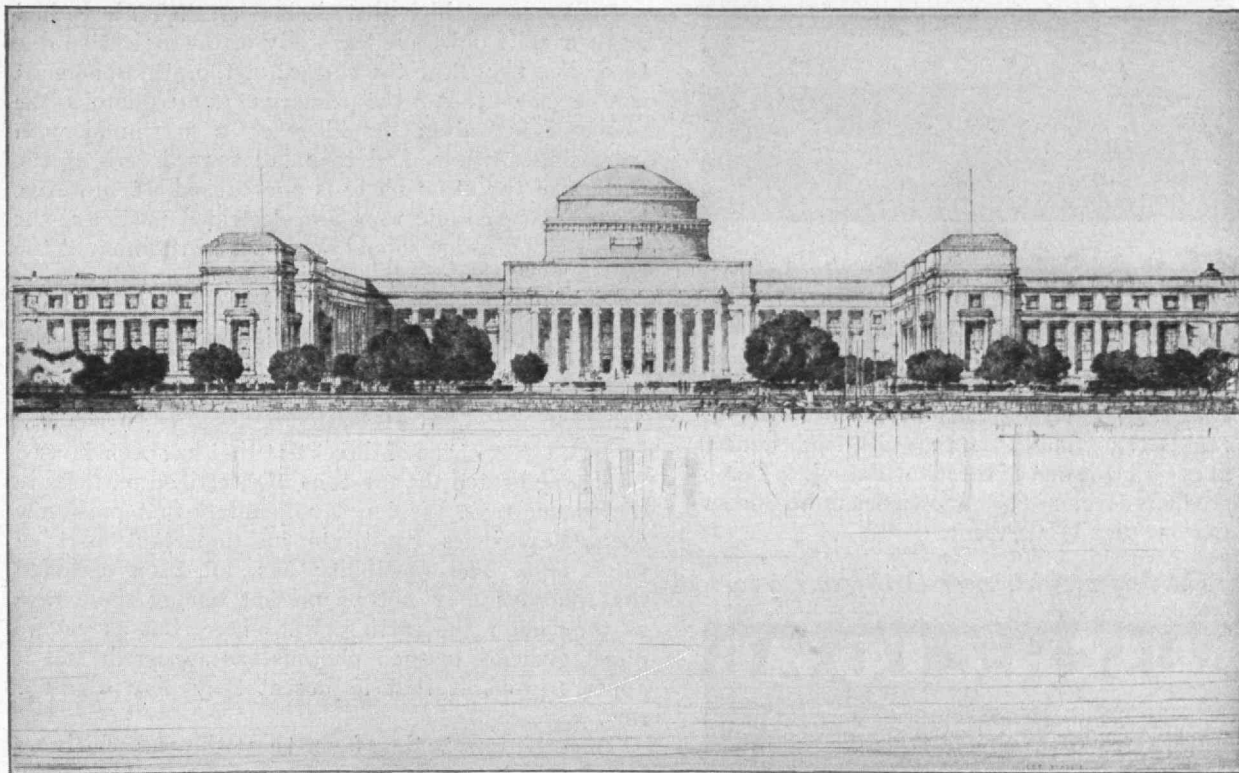
Professionally accomplished as he was, Professor Miller was supreme as a teacher. On the lecture platform he could dramatize even thermodynamics, and his broad experience in power plant engineering enabled him to leaven his classes with stories that have become part of the tradition and folklore of Technology. "They called in an expert, and when I arrived . . . the pipes, Gentlemen, were a bright cherry red . . ." — we shall miss these famous lines.

Professor Miller was also active in alumni affairs. From 1900 to 1901 he was Secretary of the Alumni Association and in 1920 he became the representative of his class on the Alumni Council.

Council Meetings

SINCE the last issue of The Review, the Alumni Council has held its 166th and 167th meetings. The latter (held on May 22), which (*Continued on page 352*)

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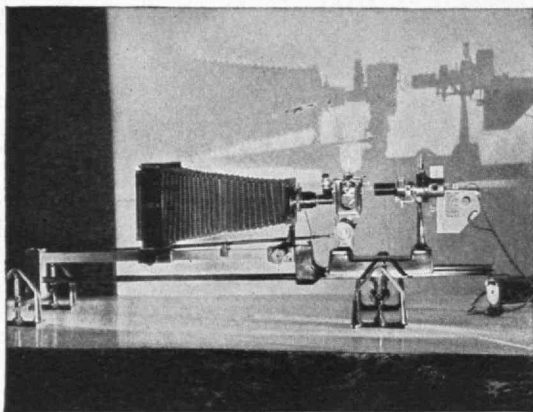
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COSMIC RAY CLUES

(Continued from page 328)

from the west. This means that at least a considerable part of the cosmic rays consists of positively charged particles.

5. The recent high-altitude balloon flights have had as their chief objective the study of the ionization due to cosmic rays near the surface of the atmosphere. It can be shown that if the primary rays are photons, the observed ionization should reach a maximum with increasing altitude, and then fall toward zero as the surface of the atmosphere is approached. If, however, the primary cosmic rays are electrified particles, the observed ionization should approach a maximum at the top of the atmosphere. The highest measurements so far performed are those of Regener, whose balloon went to 17 miles above the earth, and his results seem rather definitely to support the electrified particle theory.

THUS every type of direct test that has been devised has indicated the presence of electrified particles in the cosmic rays. We can say definitely that positively charged particles constitute an important part of these rays. The possibility has not been excluded that photons may not be present among these rays as they enter the earth's atmosphere; but as yet no direct evidence of such photons has appeared, and it appears probable that if present they play a minor role.

The experiments thus favor those theories which are based upon the assumption of cosmic rays as electrified particles rather than as photons. Of the electrified particle theories, those which attribute the rays to particles shot from the sun or stars, as Dauvillier and Swann have done, are somewhat difficult to reconcile with the positively charged character of the rays. For while negatively charged thermoelectrons might well be thus produced, the origin of positively charged rays is more difficult to account for. New information on this point may be anticipated if work now in progress shows whether these positively charged cosmic rays are protons or "positrons."

In the meantime, all of the data so far found fit satisfactorily with Lemaitre's bold "explosion" theory of the rays.

A rapidly growing aspect of the study of cosmic rays is their use as a tool for the investigation of the structure of the atomic nucleus. The most striking result of such experiments is Anderson's recently announced discovery of the positive electron, or "positron." Because of the tremendous energy of the individual cosmic ray, it is capable of producing nuclear disruptions much more violent than those resulting from the most powerful artificial sources. Thus a recent photograph by Blackett shows no less than 20 pieces presumably ejected from the nucleus of a single atom by the action of one cosmic ray. The energy of the particles flying from this burst is not less than several billion electron volts. It will be a long time before the laboratory will produce ten billion volt electrons. Until that time we may expect to find cosmic rays of unique value for studies of nuclear structure.

THE ART OF EXAMINATION

(Continued from page 329)

personal knowledge. In the middle of the first year of the Harvard Law School there are examinations offered to those who choose to take them. Their object is clearly not at all discipline, for they are voluntary; they are not used for measurement on behalf of the School for the results do not count toward marks in the courses, and except in the matter of student aid no effect is given to them. They are offered that the student himself may know how he is doing and improve his own work thereby. Hence their object is almost wholly educational. Let me give another example, that of the discussion of cases in that School, according to the method of Langdell. These are not formal examinations, and yet they partake of their character. When I was in the Law School, out of a class of about 40 men, some eight or ten who wanted to do so took part in the discussions every day. They tried to expound the problems presented by the cases, and did so in a highly competitive spirit. They were, in effect, being examined, or examining themselves, before the class. Now the object of this was certainly not disciplinary, nor, except in the sense of rivalry, was it measurement, for of course no record of it was ever kept; and so far as it may be called examination, its effect was purely educational. The same thing is true, in a lesser degree, of all themes, reports, and problems to be written or done, where no doubt discipline and measurement enter, but the primary intent is education — that is, training in the acquisition and use of knowledge.

Such cases, if not all of them examinations in the ordinary academic form, are in substance a species thereof, and they are certainly a part of the educational process. Now someone will say, that may be true of such things when intermediate, taking place in the course of a period of study; but how can a final examination that occurs at the end of the period be a part of the process? In three notable ways: by setting a standard; by requiring the expression of thought; and by promoting the association of ideas. These things interlace, of course, and yet they may be discussed separately.

Every examination at the close of a period of instruction tends to direct attention to the matters on which it lays stress. If it demands bare facts, dates, and formulæ, these will be uppermost in the mind of the teacher and prevalent in the thought of the students. If the information required is such as can be rapidly crammed, many of the class will be tempted to put off work until near the end. But if the questions require a real comprehension of the subjects dealt with and their significance, the nature of the examination will color the character of the instruction given and received. I am assuming that where the examination is written, the questions are printed and published, and that where experimental or practical, the scope is made known. If so, these things will be considered by the students as the goal they are expected to attain, and for that reason it is an advantage to have a distant one. If the nature of the examination is not known, it loses much of its value as part of the process of education. (Continued on page 348)

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THE ART OF EXAMINATION

(Continued from page 347)

May I be pardoned again if I use an illustration within my own observation. The principle of a general examination was introduced into the Harvard Medical School in 1910. It went through different forms, and several years passed before a series of experiments showed how it had best be used. In its definitive shape it is truly general. It is obligatory for all students at the end of the four years' course, and covers all the subjects studied both in the laboratory and the clinics. It is, of course, a measurement, but that is not its chief aim; and, in fact, the proportion of failures is very small. For a time its nature was not understood, and some of the faculty seemed to consider its purpose a review for the assigning of marks; but its real object is quite different, that of requiring a correlation between the various subjects included in the whole four years' course. In medicine this is peculiarly difficult because, studied separately, the relations between them are not easily grasped. The connection between anatomy, chemistry, the diagnosis and treatment of disease, and the curative processes of surgery are not at the outset obvious to the student, or always so taught as to make them so. The art of medicine deals with man as a complete, self-consistent organism, and the art of the general examination is to cause the student to regard it as such. For this purpose the questions are not special but comprehensive, each calling forth the bearing of different subjects on one another. Let me repeat, the essential thing about this examination is not the measurement in itself, but the attitude it engenders; and although nothing accomplishes its ends perfectly, it has had a notable effect in causing the students to reflect upon medicine as a whole, as well as an influence on the teaching of diverse subjects.

Every examination, whose nature is known, set at the close of a period of study upon the subjects studied, will affect the attitude of the students toward those subjects for good or evil, becoming to that extent an integral part of the process of education; and the more it is considered by the examiners from this point of view the better its effect is likely to be.

The second way in which an examination may be a valuable part of the process of education is by requiring a systematic expression of thought. Some wise man has remarked that no one knows a subject in an intellectual way unless he can talk or write about it — that is, can express his ideas upon it. For to express oneself involves arranging one's thoughts in order, formulating, and thus clarifying them — a very different thing from answering Yes or No to a series of questions formulated by the examiner. The great art in life lies less in solving problems than in discovering the problems to be solved, and to that an examination may, in part at least, direct attention. By so doing, it can reduce the comparative weight of mere memorizing, and cause the student to make the subject his own, leading him to work it over in his mind until he can express it, not in the terms of a book or a statement by a professor, but as it comes to stand in the fabric of his own thought. If he knows that at the close of his studies he will be called upon to do this,

he will be inclined to prepare himself for an orderly statement of what he has learned.

To be fair such an examination should comprise options, for one man will have thought more on one point and his neighbor more on another. Moreover, the answers cannot be marked by mere clerical labor because every student's formulation and expression of his ideas is, and should be, somewhat different from that of every other, and can be valued only by a person thoroughly conversant with the subject. Of course this entails the uncertainty that lies in any personal judgment, but it is a case where the precise mark is of less consequence than the effect on the educational process.

The same is true of the third potential influence of examinations, that of promoting the association of ideas. For students it is very easy to think of their work as amassing facts and formulæ, and this is strengthened by examinations framed for the sole purpose of measurement, for they tend naturally to require such things. But the true object of education is only in part the acquisition of bare knowledge. Much of that will vanish away. More important is the art of dealing with facts, of correlating, comparing, and combining them. Not least is the sense of proportion that comes from looking at things from more than one point of view; and this type of examination may encourage or depress. If I may turn once more to the experience of the Medical School: At first the European plan of one general examination at the end of the laboratory subjects and another at the close of the clinical years was tried, but it was found that the real object was to correlate these two kinds of knowledge, and a single examination was substituted where each question involved the use of both.

The end sought by education is enlarging and refining the mind of the student, inducing keen perception, correct reasoning, and above all an appetite for knowledge and thought for their own sake which will not vanish, but once acquired is well-nigh insatiate, unquenchable, and capable of being turned in many directions. Examinations consciously treated as a part of the educational process are more likely to promote that purpose.

Education is a vast and complex thing of which we have learned something by experience, by theory not very much; and verily the art of examination is difficult, for it aims at several distinct objects at once. These things are not to be solved by a formula, nor are any formulæ either exact or essential, for there may be many roads to the same end. But one matter that has not yet received the attention it deserves, and is well worth study, is that of examinations as a vital factor in the educational process.

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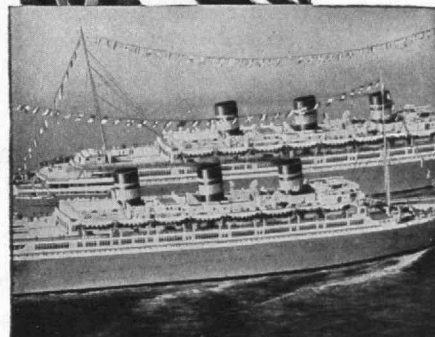
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ENGINEERING SOCIETIES

(Continued from page 331)

note that the stated objects of most of the organizations exhibit traces of a common denominator in that they have been founded to: promote, cultivate, advance, encourage, increase, diffuse, disseminate, unite, protect, or coördinate something or other — usually: knowledge, arts and sciences, intercourse, research, principles of, standards, construction, utilization of, or theories about.

The catholicity of the National Research Council's *Handbook* allows it to embrace such "Scientific and Technical Societies and Institutions" as: Mazamas, Isaac Walton League of America, and the Mundatechnical Society of America. The Mazamas is (or are) heartily in favor of the exploration of snow-clad peaks — a sort of specialized Appalachian Mountain Club, which is also noted; the Walton League exists to promote enjoyment of all outdoors and not merely fishing; while the Mundatechnical Society, in case you are ignorant, gentle reader, has nothing to do with technocracy. It has for an objective "the advancement of the dry-cleaning industry through scientific research."

Competition between societies is by no means unknown: the Metric Association and the American Institute of Weights and Measures contend for "the advantages of the general use of metric weights and measures" and the "conservation and improvement of our basic English units of weight and measure, and opposition to hasty and ill-considered legislation involving changes from those standards," respectively.

Such competition cannot be gainsaid, but the tremendous amount of duplication is hardly worthy of the engineering profession. Why should the A. A. E. and the Engineers' Council for Professional Development be independently working for the same goals? Why should there be committees on education unrelated to the S. P. E. E.? Why should the Engineering Foundation and the A. A. E. each issue publications on vocational guidance when a joint effort might have resulted in a better book and greater economy? Why, in short, has the engineering profession never been able to organize itself into a homogeneous whole despite the fact that other professions, less imbued with the spirit of order and system, have accomplished the feat? Would a coördinating body similar to the American Academy of Engineers projected during the Wilson administration be beneficial?

These are the questions which inevitably arise from an examination of organized American engineering.

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THE TREND OF AFFAIRS

(Continued from page 340)

modern meteorology. He came to Technology to discuss with Professor C. G. A. Rossby plans for an aerological investigation of the stratosphere by means of a new type of recording instrument which can be sent to great altitudes with sounding balloons. The purpose of this investigation would be to study the interaction between the stratosphere and the troposphere (the region below the stratosphere) during the passage of cyclonic disturbances in the latter.

Dr. Bjerknes' new instruments make possible an inexpensive method of collecting observations in stratospheric levels considerably above those reached by the more laborious and expensive methods of manned balloons.

The stratospheric investigation forms a natural extension of the investigation in air mass and front studies by airplane which have been carried on at the Institute for the past two years under a generous grant from the Rockefeller Foundation. These studies and the polar front analysis, which has been made at Technology by Professor H. C. Willett for the past four years on the daily weather maps for the North American continent, form a necessary basis for the proposed stratosphere investigation, and are now being studied by Professor Bjerknes. In addition to his conferences with members of the aerological staff at Technology, Professor Bjerknes delivered a series of lectures on meteorology.

THE INSTITUTE GAZETTE

(Continued from page 344)

was also the annual meeting of the Council at which time reports of all officers and committees are made, concluded the body's agenda for the year. This year the reports were not presented in entirety but were submitted to the Secretary, who read to the Council a short summary of each. See page 344.

At the meeting on April 24, the Council had the pleasure of greeting its President-Elect, the Honorable Redfield Proctor, '02. The Secretary reported that the Central Florida Technology Club, with headquarters at Tampa, had been recognized; that A. W. K. Billings, Jr., '26, had been appointed to the Committee on Assemblies for five years, Robert P. Bigelow to the Committee on Historical Collections for five years, and Marshall P. Dalton, '15, to the Committee on Permanent Funds (this committee was dismissed by the May meeting) for three years. He reported the election of officers of the Association and nomination of Term Members of the Corporation as listed in the April Review.

The referendum on changes in the constitution resulted in 1,627 votes in favor of substituting the new document for three years and only 42 in favor of retaining the present instrument.

The following report of the Committee on Nominations for Advisory Councils was presented by Raymond S. Stevens, '17:

(Continued on page 354)

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THE INSTITUTE GAZETTE

(Continued from page 352)

"*Athletics*: Allan Winter Rowe, '01, Secretary, to succeed Allan Winter Rowe, '01, for three-year term to 1936. Eligible for reelection. Joseph L. Levis, '26, to succeed Atwood P. Dunham, '17, for a term of three years to 1936. Not eligible for reelection.

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"*Tech Show*: Members of present skeleton committee remain in office until 1935.

"*Drama Shop*: Frederick Bernard, '17, to succeed Frederick Bernard, '17, for three-year term to 1936. Eligible for reelection. William C. Greene, Faculty, to succeed F. K. Morris, Faculty, for a term of two years to 1935. Not eligible for reelection.

"*Boat House*: John L. Batchelder, '90, to succeed John L. Batchelder, '90, for a term of three years to 1936. Eligible for reelection.

"*Walker Memorial*: Arthur D. Little, '85, to succeed Arthur D. Little, '85, for a term of three years to 1936. Eligible for reelection. William Emerson, Faculty, to succeed C. E. Turner, '17, for a term of two years to 1935. Not eligible for reelection.

"*Musical Clubs*: W. P. Lowell, Jr., '26, to succeed W. P. Lowell, Jr., '26, for a term of three years to 1936. Eligible for reelection. Robert S. Harris, '28, to succeed C. F. Park, '92, for a term of three years to 1936. Not eligible for reelection."

At the conclusion of business the Council heard an illustrated address by Dr. Bruce C. Hopper, Professor of International Relations at Harvard, describing his 1,000-mile journey from India through Northern Burma to Western China.

In addition to the annual reports presented at the meeting on May 22, the Council elected three members of the Nominating Committee provided under the old constitution and which is still to be held in readiness against a breakdown of the new constitutional system. Those elected for a term of three years were: Edward F. Miller, '86 (see page 342); Henry E. Worcester, '97; L. F. Hamilton, '14.

The Secretary announced the resignation of John L. Batchelder, '90, from the Advisory Council on the Boat House and the election of Harry J. Carlson, '92, as Chairman to fill the vacancy. He reported that the Executive Committee had accepted the recommendation of the Advisory Council on the Flying Club that it be reorganized to take care of the students' Glider Club and that the Advisory Council on the Flying Club become the Advisory Council on Flying Clubs. It ratified the election to this council of two new members: Admiral Richard E. Byrd, until 1934, and Gardiner Fiske, until 1936. The Executive Committee also had reelected Charles E. Locke, '96, Secretary, and J. Rhyne Killian, Jr., '26, Treasurer of the Association.

With the completion of business, the Council then heard Honorable Eugene C. Hultman, '96, Police Commissioner of Boston, who spoke on "Modernization of the Police Force of a Large Metropolitan City."

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PREPARED BY JOHN J. ROWLANDS, DIRECTOR, INSTITUTE NEWS SERVICE

Graduate Houses

Establishment of a graduate housing plan in recognition of the increasing importance of postgraduate work at the Institute was recently announced by President Compton. The appointment of Dr. Avery A. Ashdown, instructor in the Department of Chemistry, as faculty master of the graduate houses also was announced.

Authority to start the graduate house plan was voted by the Executive Committee of the Corporation. By bringing graduate students into one group, it is hoped that those contacts which aid in developing qualities of leadership and cooperation among students will be encouraged.

Discussing the need for such a plan at Technology, President Compton in a recent address to the Alumni said:

"Graduate students now lack almost completely the social contacts which the undergraduates enjoy through their manifold organized activities. Their cultural development, and hence their social effectiveness, depend upon such contacts. The most natural cultural training comes from free social intercourse between men of differing interests but of equivalent intellectual outlook."

Three undergraduate dormitories, Crafts, Nichols, and Holman, which are situated behind the President's house on Charles River Road, are now being refurnished as graduate houses. Of these, Crafts, which was originally planned as a fraternity house, offers special facilities for the comfort of the students. It will include a well-stocked library with attractive lighting and new furniture. Adjacent to this room is a large lounge which is being redecorated and equipped with new furniture and draperies. The house master's suite, consisting of bedroom, study, and lounge overlooking the Charles River, will be in this building.

The houses will accommodate 90 students, or approximately one-fifth of the entire graduate school. These men will have the choice of single rooms or suites, with dressing rooms and studies. A number of rooms have fireplaces, and all will be completely furnished, including attractive rugs and draperies. They will have complete porter service, and an interconnecting telephone service will add to the facilities for communication.

Assisting Dr. Ashdown in administration of the graduate houses will be a student committee, two members of which have already been appointed. They are Richard L. Fossett, Jr., of Albany, N. Y., President of the Institute Committee, who will complete his undergraduate studies this spring and begin postgraduate work in the autumn, and David B. Langmuir

of Englewood, N. J. Mr. Langmuir was graduated from Yale in 1931, and is now carrying on graduate studies in physics at Technology. He is a nephew of Dr. Irving Langmuir, noted research chemist of the General Electric Company. A third graduate student will be elected to the committee next fall.

Students in the graduate houses will dine together in Walker Memorial at least once a week. The house master will preside, and from time to time there will be addresses by distinguished guests representing various branches of science and engineering, as well as the great industries.

Technology's first graduate house master was born near North Collins, N. Y., and is a graduate of the University of Rochester, where he later was an instructor in biology for one year and in chemistry for four years. After carrying on graduate studies at Technology, he was awarded the degree of doctor of philosophy in 1924. The following year he spent in further advanced studies in organic chemistry under Professor Hermann Standing at the Eidgenossische Technische Hochschule in Zurich, Switzerland.

Dr. Ashdown was appointed a Grasselli Fellow at Technology from 1923 to 1925, and held the Moore Traveling Fellowship of the Institute from 1924 to 1925. His appointment as an instructor in organic chemistry came in 1930. He is a member of the American Association for the Advancement of Science, the American Chemical Society, the International History of Science Society, and the German Chemical Society.

Appointed in Architecture

The appointment of Lawrence B. Anderson as Professor of Architectural Design in the School of Architecture of the Institute was announced by Professor William Emerson, Dean of Architecture, on May 22.

Professor Anderson succeeds Professor Jacques Carlu, widely known for his distinguished work in design, who returns to France to continue his work as Director of the Fontainebleau School of Fine Arts.

Technology's new Professor of Architectural Design was graduated from the University of Minnesota in 1927, having been awarded the degree of bachelor of science from both the Liberal Arts College and the College of Engineering and Architecture. He was also elected to Phi Beta Kappa and was regarded as one of the ablest students ever graduated from the College of Engineering and Architecture.

Following his graduation from the University of Minnesota, Professor Ander-

son taught architectural design at the University of Virginia for two years. He then came to the School of Architecture of Technology for advanced studies and was awarded the degree of master of science in architecture in 1930. In the last year of his work at the Institute he was awarded the Paris Prize, the "blue ribbon" of all student prizes, at the Beaux Arts Institute of Design. He spent two and a half years of travel and study in Europe, during which period he won several medals at the Ecole des Beaux Arts in Paris. Professor Anderson will begin his work at Technology next autumn.

Student Tutors

As further extension of its aim to give worthy students every possible opportunity to meet the cost of their education, the Institute next fall will establish an approved list of student tutors in first and second year courses, President Compton announced on May 16.

In addition to providing financial assistance to deserving students, the plan will at the same time offer these tutors unusual opportunities for gaining valuable experience in methods of teaching.

Under this system, which is established by vote of the administrative and faculty councils of the Institute, any registered student will be eligible to apply to H. E. Lobdell '17, Dean of Students, for a position on the approved list of tutors. Preference will be given to upper classmen and graduate students. The technical competence of applicants will be passed upon by the heads of departments responsible for the subjects in which the students desire to tutor. This plan abolishes paid tutoring in first and second year subjects by members of the instructing staff.

The new tutoring plan is expected to make available to those students who desire coaching the services of a large group of students well qualified to tutor in a wide variety of subjects.

A Course in City Planning

In recognition of the growing need for long-range professional planning of towns and cities, a comprehensive course in city planning will open next fall at the Institute's School of Architecture. The new course represents one of the first major efforts of educators to meet the complex problems arising from haphazard municipal expansion.

By means of a new scholarship in city planning, created from funds of the Carnegie Corporation, a graduate of the new course will be entitled to a year's research study in this country or abroad. Through

an additional grant from the same source, a valuable program of research will be undertaken next year in the Institute's Architectural Department.

Such vital community problems as slum clearance, the adequate housing of industrial workers, and improved traffic circulation will be studied in the new course. In response to the growing public demand for healthier, safer, and more beautiful communities, the city planner will work to effect both art and economy in public works, as well as a permanent harmony between buildings and their surroundings.

An increased general interest in the construction of moderate-priced homes is reflected in plans for special study of this important problem. Constituting another large phase of the work will be long-range planning of public works, playgrounds, streets, and highways.

In a series of lectures by eminent members of the city planning profession, such authorities as John Nolen, Thomas Adams, Robert D. Kohn, and Clarence Stein will discuss various technical and cultural aspects of municipal development. While based primarily on a knowledge of architecture, the course will include principles of such closely allied fields as engineering, sociology, economics, and law.

Studies in practical design will be coordinated with lecture courses in highway construction, water supply and waste disposal systems, and other engineering problems. A survey of European civilization will consider some of the cultural and artistic backgrounds of modern life.

The course will be offered as a two-year option to students who have completed three years of architectural training, and will lead to the degree of bachelor of architecture in city planning. It has been developed with the aim of equipping graduates with a technical knowledge and breadth of outlook sufficient not only to understand the causes behind present unsatisfactory conditions of city building, but to arm them with methods of thought and work which will ensure an analytical attitude toward problems of today and tomorrow.

The three preliminary years of architectural study will form a sound cultural and professional background for the more specialized work in city planning. The two years' time will be largely devoted to a major course in design and to another in the theory and practice of city planning. The former is similar in method and content to the corresponding subject in architecture. The latter course is of a comprehensive nature, including vitally essential material which, though perhaps handled earlier in a number of small courses, is believed will assume added significance in the proposed closely knit unit.

Faculty Club Elections

Elections of officers of the Faculty Club of Technology for the coming year were held at a luncheon meeting in

Walker Memorial on May 17. Reëlections included that of Professor Murray P. Horwood '16, of the Department of Biology and Public Health, as President; Professor Frederick K. Morris, of the Department of Geology, as Vice-President; and Professor Leicester F. Hamilton '14, of the Department of Chemistry, Treasurer.

Professor Karl L. Wildes '22, a member of the staff of the Electrical Engineering Department, was elected Secretary of the organization, succeeding Professor Arthur C. Hardy '18. Chosen as members of the Executive Committee were Professor Ralph E. Freeman, of the Department of Economics and Statistics; Professor George R. Harrison, of the Physics Department; and Professor Walter M. Fife '21, of the Department of Civil Engineering.

Lectures on the Stratosphere

Dr. J. Bjerknes, the famous Norwegian meteorologist, arrived at the Institute early in June to deliver a series of lectures on the stratosphere and to discuss problems of upper air investigations with members of the Institute's meteorological research staff.

Dr. Carl G. Rossby, Professor of Meteorology at Technology, has also returned from Europe after an absence of eight months, during which he studied the latest advances in modern European meteorological methods.

Dr. Bjerknes studied for his doctorate at the University of Oslo under his father, Professor V. Bjerknes. The name of the Bjerknes family, together with that of H. Solberg, was associated with the first formulation and publication of the polar front theory in weather forecasting. This included the so-called Bjerknes model of the typical cyclone with its frontal structure and distribution of precipitation, and the concept of the cyclone family, generated as a series of wave disturbances on a portion of the polar front. More recently he has been working on meteorological observations of the upper atmosphere, with the object of extending the present knowledge of frontal structure to higher levels and of correlating and interrelating changes in the atmosphere.

Professor Bjerknes studied the work which has been carried on by the Technology meteorological staff during the last three years in order to apply this modern European method of weather forecasting to American conditions. Professor Hurd C. Willett is in charge of this synoptic part of the Institute's program.

Following his visit in Cambridge, Dr. Bjerknes attended the meeting of the American Association for the Advancement of Science at Chicago. Dr. Rossby and Dr. Karl O. Lange, of the Institute's research staff, also presented papers at the Chicago meeting on recent meteorological investigations at Technology.

Professor Bjerknes is also expected to lecture at the University of Toronto, at the invitation of Canadian government officials, on some of his most recent researches.

To Lecture Abroad

Dr. Robert J. Van de Graaff, whose electrostatic method of generating high voltage electricity has aroused worldwide interest among scientists, has been invited to address the British Association for the Advancement of Science at its meeting in Leicester, England, early in September. On this occasion he will deliver a paper on "The Electrostatic Generation of High Voltages for Nuclear Investigation." During his stay in England Dr. Van de Graaff will visit the famous Cavendish Laboratory in Cambridge and various others.

Century of Progress Exhibit

An exhibition of scientific apparatus, models, instruments, striking photographs, and drawings illustrating the contributions of the Institute to progress in science and engineering is now on display in the great Hall of Science of the Century of Progress Exposition in Chicago.

The exhibition is in charge of Bennett Archambault, Great Falls, Mont., and William R. Power, Huntington, W. Va., both of whom were graduated from Technology last year. Alumni of the Institute visiting the exposition have facilities for registering at Technology's exhibition.

The exhibit includes a working model of the giant electrostatic generator designed by Dr. Robert J. Van de Graaff and now nearing completion at the Institute's research station at Round Hill, Mass. The new type of stroboscope developed by Professor Harold E. Edgerton '27, which makes it possible to "stop motion" in various types of high speed machinery, is also being shown. Its application to the study of vibrating mechanisms is seen in an arrangement in which a motor suspended on springs oscillates rapidly. In contrast to this new type of instrument is a model of a stroboscope developed about 1834.

The Institute's Department of Aeronautical Engineering has a model wind tunnel, in which is illustrated the method of measuring the flight behavior of a model airplane by means of an electric balance. There are also photographs of the great wind tunnel in the Guggenheim Aeronautical Laboratory, contrasted with illustrations of a very early type. The Institute was a pioneer in aeronautical research by means of a wind tunnel.

The Michelson-Stratton Harmonic Analyzer, built in 1898 by Michelson and the late Dr. Samuel W. Stratton, is also on exhibition. It made possible the mechanical solution of problems in integral calculus.

The Nautical Museum of Technology has sent a group of model warships illustrating the evolution of British men-of-war from the year 875 to 1919, a panorama of ten centuries of progress in naval architecture. From the Department of Biology and Public Health is an electro-dialysis apparatus for the purification and concentration of enzymes. This exhibit

includes as well apparatus used in Technology's aerological research airplane for gathering bacteria at high altitudes.

Another device known as the Boltzman distribution apparatus illustrates molecular motion, and other apparatus shows the effects of discharging high frequency currents in vacuum tubes filled with mercury vapor. These discharges produce unusually beautiful color effects which are studied by scientists in the investigation of the spectra of various elements.

Motion pictures showing the various research activities carried on at the Institute, including the spectacular work at Round Hill, and familiar sights which are now revealed in new forms by high-speed photography, are being shown at the exhibition. These include the various shapes of drops of liquid, the striking of a golf ball showing distortion at the moment of impact, and the smashing of glass, which, instead of flying, appears to slowly float away.

The Department of Architecture is showing two large renderings, one illustrating the elaborate design of the Victorian period, and the other a modern design of straight lines and many large windows.

Photographs show other aspects of the Institute's laboratories, including the differential analyzer, known popularly as the "thinking machine," the network analyzer, on which entire power systems may be reproduced in miniature and operated for research, the Technology weather plane, the model of the Cape Cod Canal, apparatus used for studies of steam at high pressure, and many others. On another board are views of the old Rogers Building contrasted with photographs of the present plant, a picture of the original Rogers Laboratory of physics and one of the new Eastman Research Laboratories, and others of the early metallurgy laboratory in Rogers and the present fire metallurgy laboratory. In this panel is also a photograph of a vacuum spectrograph and an interior view of the spectroscopy laboratory.

The exhibition will be open until November 1.

Electrical Engineering Honors Group

Ten sophomores of the Institute have been appointed members of the honors group of the Department of Electrical Engineering, it was announced on June 5. These students, chosen on a basis of responsibility and high scholastic standing, are: George C. Dunlap, La Feria, Tex., who prepared for Technology at the Virginia Military Institute; Edward E. Helwith, Brooklyn, N. Y., Erasmus Hall High School; Paul G. Herkart, South Orange, N. J., Columbia High School; Stanley B. Howard, West Somerville, Somerville High School; James DeB. Parker, Swampscott, Lynn Classical High School; David D. Terwilliger, East Cleveland, O., Case School of Applied Science; John Thorpe, Needham Heights, Needham High School; Perry H. Ware, Med-

ford, Medford High School; Franklin A. Yates, Balboa, Canal Zone, Balboa High School; and Otto E. Zwanzig, Weehawken, N. J., Woodrow Wilson High School.

The honors group plan of the electrical engineering department permits to its members considerable freedom from class attendance and routine assignments. Each honors student works very much on his own initiative, with the advice and guidance of members of the staff. The arrangement allows greater opportunity for collateral reading, and is designed to foster originality, self-reliance, and intellectual courage.

Summer Work in Spectroscopy

Recognizing the rapidly increasing importance of spectroscopic methods of qualitative and quantitative analysis in chemical, metallurgical, mechanical and other branches of engineering, the Institute is initiating a program of research in this field in its new Spectroscopy Laboratory, an adjunct of the recently completed George Eastman Research Laboratories of Physics and Chemistry.

In order to obtain a close contact with industrial problems at the start, the Institute is organizing a research conference on problems in spectroscopic analysis during the week beginning July 17. Several industrial experts in this field have already signified their intention of being present and have stated their willingness to give discussions regarding aspects of the problem with which they are most familiar. Manufacturers of spectroscopic equipment especially designed for analytical work are planning to have apparatus on display and in operation in the laboratory during this conference.

A course on Practical Spectroscopy is being offered in the regular Institute Summer Session during the six weeks from June 13 to July 25, which will deal largely with applications of spectroscopy to biology, chemistry, geology, metallurgy, and other branches of applied science. The last two weeks of this course, from July 10 to 22, will be devoted to quantitative spectroscopic analysis; this section of the course will form an independent unit which may be taken without the remainder. During the last week of this course the research conference will be held.

Paralleling the course on Practical Spectroscopy will be a laboratory course on Applied Spectroscopy, in which opportunity will be given to use spectroscopic apparatus for analytical purposes.

A course on Structures of Atoms and Molecules based on spectroscopic evidence will run concurrently with the above-mentioned courses.

Persons having special problems of a suitable type for investigation in the laboratory during the summer, either by carrying on research themselves, or by furnishing industrial problems for study by members of the staff, are invited to submit them for consideration.

Stratton Prize Winners

Fuller information on the Stratton Prizes as announced at the graduation exercises (see page 341) might appropriately be given here.

Maxwell D. Millard, Morristown, N. J., a senior in electrical engineering, was awarded first prize for a technical paper on "The Photo-electric Cell." Second prize was given to Robert L. Kengott, a junior of Newton, Mass., whose paper discussed the "Wireless Transmission of Power." Raymond P. Holland, Jr., Scarsdale, N. Y., also a junior, won third prize for a paper on "Wings."

The judges in the final contest were Dr. Arthur D. Little '85, of Arthur D. Little Company; Dean George P. Bacon of Tufts College Engineering School; and Mr. Edward L. Moreland, of the firm of Jackson and Moreland.

Notes From the President's Office

In addition to active participation in scientific and academic affairs, President Compton in recent months has been the guest of various Technology Clubs in the East and Middle West.

During April he addressed meetings of the Technology Clubs of Philadelphia and Wilmington, following which he attended sessions of the National Academy of Sciences and the American Physical Society in Washington.

Dr. A. Lawrence Lowell, President of Harvard University and Commencement speaker at the Institute's graduation exercises, was guest at a dinner given in his honor by Dr. and Mrs. Compton on the evening of June 5.

Dr. Compton left Cambridge on June 17 for Chicago, where he attended meetings of the American Physical Society and the American Association for the Advancement of Science. On June 29, during Engineering Societies Week, he and Vice-President Vannevar Bush addressed a dinner meeting of the Technology Club of Chicago, which was attended by Alumni from all parts of the country. On June 30 Dr. Compton was the guest of the Detroit Technology Club.

Dr. Compton will spend part of the summer with his family at Blue Hill, Maine. Dr. Bush and his family will vacation at their summer home on Cape Cod.

Summer Courses In Textiles

In response to the growing demand of the textile industry for scientific knowledge and methods, special summer courses will be conducted at Technology in textile microscopy, technical analysis, and laboratory research. The work, which will be under the direction of Professor Edward R. Schwarz '23, will begin on July 26 and continue until September 6. The courses will cover the technique of the physical testing of textiles, methods of report writing, graphical interpretation of data, and elements of fabric and yarn structure.

ADVERSARIA

Congratulations

¶ To WILLIAM H. TIMBIE, Professor of Electrical Engineering, on his election as Chairman of the Boston Section of the American Institute of Electrical Engineers.

¶ To JAMES H. BATCHELLER '00, on becoming Chairman of the American Institute of Mining and Metallurgical Engineers, Oregon Section, after having served six years as Secretary-Treasurer.

¶ To JOHN R. MORSE '02, on becoming Chairman of the Cleveland Chapter of the Society of Industrial Engineers. He is also Director of the Cleveland Chapter of the National Association of Cost Accountants.

¶ To WILLIAM B. BOGGS '04 and J. N. Anderson, on being awarded the Leonard Gold Medal by the Engineering Institute of Canada for their paper on "The Anode Department of the Noranda Smelter," published in the Canadian *Mining and Metallurgical Bulletin*.

¶ To JOHN MILLS '09, of the Bell Laboratories, for his invention, the ceno-orchestra, demonstrated on April 12 before several hundred musicians, scientists, and critics in the Academy of Music, Philadelphia. It was the first time that orchestral music had been transmitted with tonal fidelity over wires to an auditorium in such a way that the illusion was created of invisible instruments playing exactly where they ought to be playing on a concert stage. The extraordinary loud speakers used in the ceno system were developed by EDWARD WENTE '14.

¶ To JEROME C. HUNSAKER '12, on receiving the Guggenheim Medal for 1933 for "contributions to the science of aerodynamics, to the science and art of aircraft design, and to the practical construction and commercial utilization of rigid airships."

¶ To HAROLD E. LOBDELL '17, on his election to the Presidency of the National Association of Deans of Men at a conference of the organization in Columbus, Ohio.

¶ To EDWIN D. MARTIN '22, on his election to the Presidency of the National Battery Manufacturers' Association. He delivered an address on "A Program for the Battery Industry" at the spring convention of the association in Louisville.

¶ To EDWARD P. HUTCHINSON '28, on being awarded a fellowship by the Social Science Research Council for the study of occupational mobility and migration of the tuberculous in Sweden.

B. S. C. E.

¶ The *Journal* of the Boston Society of Civil Engineers furnishes the following information about Technology men: On March 15, RALPH W. HORNE '10, retiring President, gave the presidential address of the Society, in which he presented his observations concerning our economic

depression, giving brief accounts of the last two depressions. — Congratulations are in order to ARTHUR CASAGRANDE, on the Institute staff since 1928, for being awarded one of the Clemens Herschel prizes for his paper on "The Structure of Clay and Its Importance in Foundation Engineering," presented before the Designers Section of the Society in January and published in the April, 1932, *Journal*. — The following Technology men were elected to office for the ensuing year: ARTHUR W. DEAN '92, President; HAROLD K. BARROWS '95, Vice-President; KARL R. KENNISON '08, Treasurer; and LAWRENCE G. ROPES '20, member of the Nominating Committee. Of the 14 living past presidents attending the meeting, nine of them were graduated from M. I. T.: CHARLES T. MAIN '76, FREDERIC H. FAY '93, HARRISON P. EDDY '17, CHARLES M. SPOFFORD '93, ROBERT S. WESTON '94, RICHARD K. HALE '04, FRANK A. MARSTON '26, CHARLES B. BREED '97, LEWIS E. MOORE '02.

Retired

¶ FRANK C. SKINNER '77, after 50 years' service in the Patent Office, having received three extensions over the retirement limit. Appointed to the Patent Office in 1883, Mr. Skinner became principal examiner in 1888, organizing the classification division in 1898. He became examiner in chief in 1908, which office he occupied until his retirement. He had been a member of the Board of Appeals for nearly 25 years.

¶ ALBERT G. DAVIS '93, after completing 35 years of service with the General Electric Company. He will enter the law firm of Pennie, Davis, Marvin and Edmonds of New York, which specializes in patent work. From 1894 to 1896, Mr. Davis was employed in the U. S. Patent Office as assistant examiner. After two years as a patent attorney in Washington, he joined the General Electric Company in 1898. He was Vice-President in charge of patents.

Modern Architecture in France

¶ Excerpts from a letter written in Paris by CARNEY GOLDBERG '29, one of the Rotch traveling scholars (architecture), now in Europe: "In regard to the modern work in Paris and how the Ecole is dealing with the movement, I am afraid I honestly cannot say anything complimentary. When I wrote from Paris a year ago, I remember stating that only in some of the shop fronts could I see anything commendable. Today I still feel the same, except after I have seen better work, both modern and ancient, in other parts of Europe, I have decreased the number of shop fronts which I once listed as being good. As I see it, the biggest fault of the so-called modern French architecture

is that fundamentally it is not modern. To judge from what has been done recently, the general conception of modern architecture is: a search for new forms of decoration, a modification of classical forms, and a strong desire for novelties. On occasions, in designing shop fronts, this policy works out successfully; but in general, it is not modern architecture that is being created, but a temporary style of baroque architecture, the taste of which is often questionable. The worst of this new architecture is to be found among the numerous apartment houses that have recently been erected throughout the city. Once I thought that a great number of the apartment houses turned out at home were bad; now since I have seen some of the nightmares in this town, I must say that comparatively the Americans show a great deal of restraint and good taste.

"Since my return I have kept in close touch with the work at the Ecole. I have followed several *projets* through to completion, including a long problem and the Rougevin; and on the whole I am surprised at the low standard of the work. Heretofore I have always regarded the Ecole as the most advanced architectural school in the world; but with what I have seen to go by, I now feel that our schools have everything the Ecole has and more besides. The *projets* I have seen have in every respect, even in the execution, not been up to the standard of the student work in America. I am beginning to believe that, unless there is a decided change, before long it will be the French students who will be crossing the Atlantic for their training instead of the Americans. And as to the Ecole contributing anything toward the development of modern architecture, I have failed to notice anything constructive. Recently there was an article in one of the current Parisian art magazines which dealt with the influence Le Corbusier is having on the work at the Ecole. Whatever the article had to say commending the movement was made entirely ridiculous by the photographs of two first medal *projets* which were used to illustrate it. The photographs were of a hotel in a winter mountain resort; and to see these flimsy, cardboard solutions with their needlessly huge window area, perched so precariously amid the frozen snow, I could not help wondering what has become of all the logic which has made the Ecole so famous."

Mr. Goldberg is traveling with another Rotch scholar, Carroll Coletti, and his letter is in the nature of a report to the Rotch Committee.

In the News

¶ GERARD SWOPE '95, President of the General Electric Company, and PAUL W. LITCHFIELD '96, President of the Good-

year Tire and Rubber Company, as speakers at the annual meeting of the Chamber of Commerce of the United States, in Washington. Mr. Swope spoke on "A Practical Viewpoint of the Problem of Business Revival"; Mr. Litchfield, on "Working Periods in Industry."

¶ ALFRED P. SLOAN, JR. '95, and GERARD SWOPE '95, on having been selected by General Hugh S. Johnson as advisers on the Recovery Bill under consideration in Washington in June. They represented industry in considering trade agreements under the legislation as part of a five-man board to aid in the administration of the industrial act. Two labor delegates were also selected to secure a "fair and impartial" handling of the legislation.

¶ WALTER E. CAMPBELL '26, because of his exhibition of paintings in water color and tempera at the Casson Gallery, Boston, which received favorable comment.

Appointed

¶ WILLIAM W. DRUMMEY '16, superintendent of schoolhouse construction for the City of Boston. For the past ten years he has been engaged in practice as an architect and he has designed more than 20 school buildings in Massachusetts. He has been a substitute member of the Boston Board of Appeals, a special lecturer for the State Department of Education, and a construction consultant.

¶ EDWIN S. BURDELL '20, Director of the newly organized "Emergency School" established by Ohio State University for the unemployed, in which approximately 1,300 students are now enrolled for 102 courses under a faculty of 95 instructors.

Written

¶ By PHILIP FRANKLIN, Associate Professor of Mathematics, a book entitled "Differential Equations for Electrical Engineers," John Wiley and Sons, Inc.

¶ By NORBERT WIENER, Associate Professor of Mathematics, a book, "The Fourier Integral and Certain of Its Applications," Cambridge University Press.

¶ By HENRY B. PHILLIPS, Professor of Mathematics, a book entitled "Vector Analysis," John Wiley and Sons.

¶ By WILLIS R. WHITNEY '90, an address on "Orderly Scientific Research as the Basis of Modern and Future Civilization," given at the Harvard Business School.

¶ By ALLAN W. ROWE '01, an address on "Problems of Childhood — Affecting the Community," delivered at a meeting of The Hub of the Rotary Club of Boston.

¶ By JAMES I. BANASH '06 and G. O. CARTER, a paper on "Researches in Oxygen Therapy Equipment: Some Aspects of the Mechanical Phases of Oxygen Therapy Apparatus," which appeared in the March-April issue of *Anesthesia and Analgesia*.

¶ By ANDREY A. POTTER '03, Dean of the Schools of Engineering, Purdue University, JAMES A. MOYER, and JAMES P. CALDERWOOD, a book entitled "Elements of Engineering Thermodynamics," published

in May by John Wiley and Sons.

¶ By BRADLEY JONES '10, a book entitled "Avigation," John Wiley and Sons.

¶ By EDWARD HURST '13, a book entitled "The Technical Man Sells His Services," McGraw-Hill Book Company.

¶ By F. ALEXANDER MAGOUN '18, in charge of the Institute's course in Humanities, an address on "Training for Leadership," delivered at the 14th Annual Industrial Conference, Pennsylvania State College.

¶ By GEORGINA P. YEATMAN '25, a paper on "Small Gardens," presented at the Women's City Club, Boston. Miss Yeatman is President of the Women's City Club of Philadelphia.

Deaths

¶ JOSEPH D. SAWYER '71, on May 20. After graduating from M. I. T., Mr. Sawyer followed his father in the dry-goods commission business in New York and Boston. By 1932 he had made 720 round trips between these cities, a total distance, Mr. Sawyer estimated, of about two million miles. Mr. Sawyer and his father imported the first Lister combers to America, which enabled the Washington Mills at Lawrence to manufacture the first piece of worsted goods in this country. He also suggested uniforming the police and official employees and was the first to manufacture cloth for such uniforms. Later in his career he became interested in real estate development in Long Island and Connecticut. Besides his commercial interest, Mr. Sawyer had given considerable time to literary pursuits. His study of the Puritans, "History of the Pilgrims and Puritans, Their Ancestry and Descendants," was published in 1922 and a biography of Washington appeared five years ago. His debut in the literary world was made in 1914 with the publication of "How to Make a Country Place," followed by "The Pilgrim Spirit as Portrayed in the Plymouth Pageant of 1921." In the last year he had finished an autobiography.

¶ FRANCIS G. LODGE '74, on May 20.

¶ CHARLES W. HUBBARD '76, on May 22.

¶ IRA ABBOTT '81, on January 6.

¶ HARRY H. CUTLER '81, on May 20.

¶ JOHN M. KEYES '82, on May 20.

¶ DWIGHT F. BOYDEN '83, on May 16.

¶ WILLARD H. FURBISH '84, on May 30.

¶ HUGH HAMILL '84, on April 16.

¶ EDWARD F. MILLER '86, on June 12. Professor Miller was Head of the Department of Mechanical Engineering at M.I.T. (For account see Institute Gazette.)

¶ CHARLES C. PEIRCE '86, on May 28. The following editorial appeared in the Boston *Herald* of May 29: "Electrical engineer, national sales-manager, football player of the Boston Athletic Association in the period when beef and muscle counted most, off-stage politician, promoter of M. I. T. activities, after-dinner speaker, teller of New England stories — the late Charles Carroll Peirce shone in many fields. His joviality and rough-and-ready wit, as when he introduced two diabetics in the words: 'you two sugar refineries should know each

other,' often obscured his substantial qualities. As a pioneer in electrifying a rail transportation line, he was conspicuous at gatherings of Technology men. They respected him as much for his knowledge of applied electricity as they enjoyed him for his skill in delineating Cape Cod and Down East character. He wore the motley and the cap and bells easily, but he also had facility in a laboratory.

"Mr. Peirce was especially shrewd in politics, state and national. He was a close friend of the late John W. Weeks, and an intimate of President Harding, whom he visited at the White House so often that there is still a vivid memory of him there. He was a member of that small, realistic group which brought about the nomination of Senator Harding in 1920. The delegates, veteran editors, and experienced reporters who laughed at him for taking them to Senator Harding's quarters and introducing him as the next President, have realized often since then that 'Charlie' was far keener than they. M. I. T. men of an older generation and his business and political associates will all read with deep regret of his death." (For further account of his life see class notes.)

¶ MINTURN T. WRIGHT '88, on March 3. (See class notes for account.)

¶ HENRY M. PHILLIPS '92, on March 26.

¶ FRANCIS DUP. BALCH '93, on April 1. (See class notes for account.)

¶ BENJAMIN HODGE '95, on March 29. (See class notes for account.)

¶ ROBERT S. HARDY '96, on May 2.

¶ FRANK G. MCCANN '96, on May 17.

¶ HENRY R. HEARD '97, on June 6.

¶ GEORGE S. MUNROE '97, on May 5.

¶ EDITH A. PARKHURST '98, on April 21. Miss Parkhurst had taught for 40 years at the Roxbury High School, retiring in 1927 as Head of the History Department. She was always interested in the outside activities of her students and gave unselfishly of her time. The debating club which she founded sent many boys to Harvard Law School; and the Service Club which she also founded furnished comforts to the soldiers in the Great War. On her retirement a banquet was given in her honor at the Chamber of Commerce, at which time educational leaders from the nation, state, and city paid her tribute, and letters of greeting and appreciation came to her from former students and friends from all parts of the world.

¶ LEE R. LOVEMAN '99, on May 16.

¶ JOHN B. CONANT '00, on June 2.

¶ NORMAN L. SNOW '04, on January 27.

¶ BURNELL POOLE '06, on February 22.

¶ JAMES R. MCCLINTOCK '06, on April 11. (See class notes for account.)

¶ ABER S. WIESTER '09, on December 20, 1932.

¶ CHARLES A. WASHBURN '12, on June 6.

¶ WILLIAM P. RYAN '18, on June 1. Professor Ryan was Head of the Institute's Department of Chemical Engineering and Director of the School of Chemical Engineering Practice. (For further account see Institute Gazette.)

¶ ANDREW V. GREAVES '24, on May 9.

¶ HAROLD W. FAIRCHILD '29, on April 10.

NEWS FROM THE CLUBS AND CLASSES

CLUB NOTES

Technology Club of Albany

The annual meeting of the club was held at the University Club on Wednesday evening, May 3. After dinner a short business meeting was held and the following officers were elected for the ensuing year: President, Charles E. Smart '05, 36 Maple Avenue, Troy, N. Y.; Vice-President, Edward H. Sargent '07, 51 Harris Avenue, Albany; Redmond E. Walsh '28, Secretary-Treasurer, address given below; Member of Executive Committee, C. Hancock Wood '91, 541 Providence Street, Albany.

Our guest and speaker was Mr. David A. Midgley, instructor of history at Albany Academy. He was a most interesting and well-informed speaker and talked on political and economic questions of immediate interest. After the discussion following Mr. Midgley's discourse, the meeting adjourned. — REDMOND E. WALSH '28, Secretary, New York Power and Light Corporation, Albany, N. Y.

Technology Club of Hawaii

At the yacht races held at Pearl Harbor, Hawaii, on Saturday, April 22, and Sunday, April 23, C. W. Dickey '94 came in third on both days. He was entered in the Star Class.

By invitation of Mr. Dickey, 14 members of the club met at the clubhouse of the Pearl Harbor Yacht Club for lunch on Saturday, the 22nd. During the races of the afternoon they followed the yachts around the course in a launch, the use of which had been obtained for the club through the kindness of Captain F. A. Cooke '00.

Those present at the lunch and the following cruise were: C. W. Dickey '94, T. Clive Davies '94, Captain F. H. Cooke '00, W. C. Furer '06, S. T. Carr '06, R. S. Thurston '11, Lt. N. W. Gokey '17, E. M. Pickop '19, H. P. Field '21, Lt.-Commander G. H. Easton '21, George Gokey '21, Major S. L. Scott, Dudley W. Smith '28, and Carl B. Andrews '28. — EDWIN M. PICKOP '19, Secretary, Box 102, Honolulu, T. H.

M. I. T. Association of Buffalo

On April 13 the Niagara Falls and Buffalo Clubs held a joint meeting at the University Club in Buffalo in honor of Dr. Allan Winter Rowe. President J. B. Brinkerhoff presided, and Harry Noyes '90, of Niagara Falls, introduced Dr. Rowe. Dr. Rowe, in his inimitable way, gave us a synopsis of Alumni Association affairs, and led a lively discussion concerning Institute affairs in general.

The 40-odd men who were present voted the meeting an outstanding suc-

cess. C. D. Grover was elected President of the Buffalo group and will continue to function as Secretary for the time being.

— CLAYTON D. GROVER '22, Secretary, Whitehead Metal Products Company, 319 Niagara Street, Buffalo, N. Y.

Technology Club of Chicago

A real All-Technology dinner was held at the Bismarck Hotel on Thursday, April 20. The fact that Otto K. Eitel '24 is the hotel manager, and that the Stein Song was able to be sung with the proper setting, contributed to the success of the dinner. The promise of good times must have had an invigorating effect on the club members because the attendance of approximately 70 was much larger than at any recent meeting. The music for the evening started off with the Stein Song. During the dinner hour the Standard Oil Quartet of Whiting, Ind., gave several selections which were roundly applauded. The Quartet was made up of the following gentlemen: Dr. Sullivan, Director of the Whiting Research Laboratory; Mr. Glair, General Manager of Manufacturing at the Whiting plant; Walter Whitman '17, Assistant Director of Research; and R. H. Price '21. During the course of the evening Mr. Glair rendered several solos which met with much favor. Now that we have found out that Walt Whitman plays the banjo so acceptably and directs a quartet of such quality singers, we will hope for a return engagement.

Following the dinner three Technology men spoke for ten minutes each on subjects with which they are concerned. The speakers and their subjects were: J. I. Banash '06, "The Use of Oxygen in Medicine"; J. A. Noyes '12, "Mining Iron Ore in the Missabe Range"; and N. H. Defoe '25, "A Century of Progress Exposition." Each of the speakers gave several minutes to answering questions. Considerable interest was indicated by the audience in all of the subjects presented.

By the time this article is read the Chicago Club dinner to President Compton on June 29 will have taken place. If this article were being written in true newspaper style, it would probably state that the attendance of 200 Chicago Club members was augmented by over a hundred visiting Alumni who were in Chicago during Engineering Week. It would also state that President Compton gave a stirring address.

Many Technology Alumni will visit A Century of Progress Exposition this summer and will be desirous of seeing the Institute's exhibit in the Hall of Science.

The noon luncheon is now being held on Wednesday, instead of Tuesday, 12:30 p.m., at the Medical and Dental Arts Building, 185 North Wabash Avenue, Chicago. — W. I. McNEILL '17, Secretary,

Care of Colgate-Palmolive-Peet Company, 919 North Michigan Avenue, Chicago, Ill.

The Technology Club of Cincinnati

The annual dinner meeting of the club was held on April 11 in the Gateway private dining-room in Cincinnati's new Union Terminal. As this terminal, just opened, was designed and constructed under the direction of our fellow alumnus, Colonel Henry M. Waite '90, chief engineer of the Cincinnati Union Terminal Company, there was unusual interest in this meeting and its setting. The time before six o'clock was set apart for inspection of the new station building itself and at 6:30, 46 of our members sat down to a splendid dinner at which the Alumni President, Dr. Allan W. Rowe '01, was guest of honor.

The evening was one of compounded attractions. Dr. Rowe shone with his usual brilliance as the salad orator and his talk easily took the place of prominence in the events of the evening. Following his formal address he was called upon again and again to answer innumerable questions regarding Technology affairs that displayed both the keen interest of the audience and the speaker's familiarity with every phase of the subject. Dr. Rowe also contributed considerably toward heightening the spirit of the meeting by directing the singing of the Stein Song in the stirring tempo that he knew its author, Fred Bullard '87 (R.I.P.), had meant it to be sung. In the discussions of M. I. T. concerns Charles G. Merrell '88, Honorary Secretary of this district, and Stuart R. Miller '07, in charge of the club's scholarship fund, gave accounts of their activities during the past year and it developed that our protégés at the Institute were doing remarkably well.

Thereafter followed the election of officers, resulting in the election of W. V. Schmiedeke '12, President, C. R. Strong '11, Vice-President, S. R. Miller '07, Secretary, and O. L. Bardes '21, Treasurer. The newly elected President having been Secretary for an untold number of years, in which he had been compelled to hold his peace, now broke forth in accents wild. But the membership, having been well fed, were in a tolerant mood and took the gridironing with seemingly good grace. The gridiron was further in evidence in the treatment given two prominent undertakings of our members, Waite '90 and Garber '03, who were respectively held liable for the designs of the new Terminal Plaza and for the re-arrangement of Fountain Square, representing the two extremes (of a new bus line) and much in the public eye and mouth during the past year. Interpretations of their designs were given, setting forth the

motifs élémentaires with original inspirational sketches and appropriate melodies.

The physiognomic characteristics displayed in the designs were used to test the I. Q. of the members who, sad to say, rated a general average of only 33⅓%, prizes in the shape of original sketches of Fountain Square backgrounds by Fred Garber, being awarded S. R. Miller and William W. Bray '23 for their display of outstanding mental acumen.

But speaking of melodies, the good old harmony and verve were back on the job again with the return of the amber fluid and as "Take Me Back to Tech" came lustily on the air, great was the reverberation thereof. All in all, it was one of those good old nights. — STUART R. MILLER '07, Secretary, The Wm. S. Merrell Company, Fifth and Pike Streets, Cincinnati, Ohio.

Rocky Mountain Technology Club

The regular monthly meeting of the club was held May 12 at the home of Shirley D. Johnson '29, 475 Circle Drive, Denver. The members and guests were entertained by a very clever magician, much delighting most of the fellows, but perhaps embarrassing some who took part.

After the entertainment, a business meeting was held. It moved, seconded, and voted unanimously to elect the same officers for the coming year: B. E. McKechnie '02 as President, B. V. Howe '26 as Secretary-Treasurer. H. O. Bosworth '02 reported on the application of candidates for the Regional Scholarship and it was suggested that the candidates be invited to the next meeting. — Maxwell Parrshall '28, Review Secretary, 926 Akin Avenue, Fort Collins, Colo.

Detroit Technology Association

The Detroit club wishes to report a most successful winter season. Our present officers are: John H. Little '23, President; Edward A. Ash '22, Vice-President; Harry M. Boardman '26, Treasurer; Philip C. Baker '16, Honorary Secretary, and John E. Longyear '26, Secretary. We have continued to finance The Technology Review for two Detroit High Schools. The listing of our Club in Detroit's telephone book continues to pay dividends. Newcomers and visitors are taking advantage of this facility to locate old friends and obtain meeting information.

Our regular monthly meetings have been well attended, the average attendance running around 35. Our meeting place is the Harmonie Society, where we enjoy the best German menus. We have been very fortunate in obtaining interesting speakers for our monthly meetings. A brief *résumé* of our meetings follows:

Metropolitan Motion Picture Company, where we had a general tour and inspection and were introduced to the mysteries of sound pictures.

Vice-President Bush came on from Cambridge to give to us all the recent Institute information. We all enjoyed having Dr. Bush as our guest.

Mr. Roberts, a Detroit man who has spent considerable time in Africa in the employment of a rubber company, gave us his movies and talk on Africa. It was most interesting.

Mr. Jacob Spolanski, a U. S. Secret Service Agent, talked to us on Communism in the United States, which was most revealing.

Dr. Allan W. Rowe stopped with us on his western trip in February. A large gathering came out to meet him. It was the most pleasurable evening of our present season.

Mr. W. E. Hastings, staff photographer of the Michigan Department of Conservation, gave us his talk and movie entitled "Wild Life in Michigan." Such movies as capturing moose alive and beavers building dams were not only very interesting, but most unusual.

Hon. L. C. Hughes-Hallet, the British consul in Detroit, gave us a Britisher's impression of our community.

For the final meeting of the season, Mr. William P. Lovett, Executive Secretary of the Detroit Citizen's League, discussed with us the local municipal government situation. — JOHN E. LONGYEAR '26, Secretary, 2000 Second Avenue, Detroit, Mich.

Technology Club of Fall River

Members and guests of the Club to the number of 33 enjoyed their annual Spring outing on April 22, at the Mount Hope Estate of President Haffenreffer '95. Lunch and refreshments were served as soon as the party arrived at the Log Cabin. In the baseball game which followed, the "Blues" won in spite of umpire Joe Nute's '17 fine work for their opponents. John Coldwell '19 and Duncan Owler '16 were the shining stars, Coldwell in the box and Owler in the field.

Dinner followed the field sports and the way the food disappeared proved conclusively that salt sea breezes whet the appetite. Music and singing were enjoyed during and after the meal, the whiskey tenors making their appearance particularly during the singing of the Stein Song. The party then journeyed to the museum, where they enjoyed the still pictures of the Grand Canyon and Nova Scotia, in natural colors, shown by Mr. Conant of Technology's Photographic Service. The outing came to a close with a "We are happy, Tech is Hell" cheer for President Haffenreffer.

The following members were in attendance: R. F. Haffenreffer '95, C. N. Borden '89, J. A. Carvalho '28, J. S. Coldwell '19, J. R. Bonnar '26, George Darling '13, J. H. Derrig, Jr. '25, G. H. Eddy '75, E. N. Fell '30, R. H. Gee '20, A. E. Hirst '13, H. Lockhart '23, A. J. Nakos '25, A. D. Nute '17, J. E. Nute '85, D. S. Owler '16, Miles Sampson '08, A. A. Stewart '32, M. D. Sullivan '31, H. W. Smith '22, C. H. Warner '89, Joseph Westell, Jr. '30, N. K. Lukashevich '32, Curt Trafton, A. H. Andrews, C. L. Faunce '88, and G. H. Nye '85 were present from the New Bedford Club. J. R. Killian '26 and Mr. Conant of Technology were present as

guest speakers. — ALDEN D. NUTE '17, Secretary, 914 Highland Avenue, Fall River, Mass.

New Haven County Technology Club

On March 31 Sydney W. Gould '21 opened his house for a meeting of the club. After inspecting an aquarium of tropical fish, the meeting was called to order by President C. E. Smith '00, who then introduced Thomas W. Green '26, Secretary of the Hartford Club, and Henry B. Shepard, Secretary of the Class of 1916, who was in New Haven on a visit.

Mr. Green advised us that there would be a meeting of the Hartford Club on April 24, when Professor Phelps of Yale would give a talk. Professor Fred A. Fairchild of Yale was then introduced and he gave us a very interesting discussion on the present economic conditions, followed by a general discussion by all present.

At 11 o'clock, Mrs. Gould, with the assistance of Mrs. Gerald M. Keith and Mrs. Fairchild, served a very delightful lunch. There were 22 members of the club present. A rising vote of thanks was given to Mr. and Mrs. Gould for their kind hospitality. — MARSHALL S. WELLINGTON '16, Secretary, 60 Holcomb Street, West Haven, Conn.

Technology Club of Shanghai

The host for the February meeting was President T. K. Tse '08, who had specially ordered a luxurious Cantonese dinner at the Hang Far Low Restaurant for the 42 members attending. After the round of whisky soda was over, the dinner was started by three M. I. T. cheers for the new President led by Walter Kwok '27. During the extremely enjoyable dinner, severefinger fights were indulged in among the four table groups, the penalty being a bottom-up for every member of the losing table. The spirit of old Tech days prevailed throughout the meeting.

The meeting was called to order at 9:00 p.m. by President Tse, who asked the cooperation of the members to attend all meetings so as to maintain the reputation of the Club. He then mentioned the fact that the University Club had asked us to join them in their annual ball. It was decided that we would hold our March meeting in conjunction with the University Club affair. He asked William A. Adams '08 to relate how we could show other clubs that we were the most active alumni club in this part of the world. Emphasizing attendance, Adams' oration was most stirring and amusing.

The President appointed the following committee to make preparations for the March meeting: Walter Kwok, S. S. Kwan, W. A. Adams, T. F. Wei, and L. C. King. The President called upon the following members who had not attended meetings for some time to rise and present themselves: C. Y. Wen, C. Y. Huang, S. S. Kwan, and P. Y. Loo. He

also asked two recent arrivals to rise and introduce themselves: H. H. Needham and S. G. Eskin.

P. S. Hopkins suggested that the Secretary should correspond with William Moy Ding, our new representative on the Alumni Council. Walter Kwok suggested that the Secretary should bring every new issue of *The Technology Review* to the meeting for members' perusal. Ki Chun asked all members to give a rising vote of thanks to the host.

The March meeting of the club was held on the occasion of the annual dinner dance of the American University Club of Shanghai at the Canidrome on March 3. This meeting being a social affair, no business transactions were conducted.

T. K. Tse '08, Director-General of Chinese Government Internal Revenue Administration; P. S. Hopkins '10, President of Shanghai Power Company; and W. A. Adams '08, of Asia Realty Company, were the hosts for the occasion.

Including members' wives, 76 strong attended. As one entered the ball room, an M. I. T. sign in luminous neon tubes attracted instant attention. This sign, together with special cardinal red and gray paper hats, arm bands, and badges, made the M. I. T. group most prominent on the floor. Gaiety was the keynote of the evening. Yells, snake dancing, and singing of college songs brought us back to the old college days. If we did not have the largest group among the many clubs present, we certainly did not come second to any in spirit and noise making. — M. C. CHAN, *Secretary*, P. O. Box 434, Shanghai, China.

Washington Society of the M. I. T.

The fourth meeting of the 1932-33 season of the Washington Society of the M. I. T. was held at the University Club on Friday, January 20, and the Society was fortunate in having its distinguished fellow-member, Dr. John H. Gregory '95, of the Reconstruction Finance Corporation and Professor at Johns Hopkins University, as the speaker of the occasion.

Dr. Gregory's subject, "The Work of the Reconstruction Finance Corporation," being of great current interest, the meeting was extremely well attended and to accommodate the large number present additional tables had to be set up.

Dr. Gregory explained the limits imposed by law on the class of loans that could be made by the Reconstruction Finance Corporation and the type of reports required by the Corporation to determine whether the projects loaned on would be self-liquidating, as well as interesting data on the procedure followed by the Corporation in determining what loans to make and on what security.

The members present were: W. E. Lutz '17, Horace L. Dawson '07, Allen Pope '07, Paul Weems '02, Nolan Mitchell, guest, F. L. Ahern '14, Irving M. Dow '30, W. I. Swanton '93, William E. Swift '95, Harry E. Whitaker '09, Harry H. Grant '00, Louis J. Grayson '19, E. D. Merrill '09, William K. MacMahon '22, Richard

N. Chindblom '30, Edwin A. Packard '99, C. Brigham Allen '29, Oliver G. Green '30, Donald E. Perry '28, Frank H. Mattingly, guest, C. W. Duffy '20, Thomas M. Roberts '98, Kenneth P. Armstrong '10, F. A. Hunnewell '97, H. C. Morris '00, A. M. Holcombe '04, Francis Walker '92, Proctor L. Dougherty '97, Francis G. Wells '22, George E. Stratton '96, Harry W. Tyler '84, John H. Gregory '95, and Joseph Y. Houghton '26.

The fifth regular meeting of the Season was held at the University Club on Friday, February 17, the speaker of the occasion being Dean Henry G. Doyle who addressed the Society on revolutions in South America.

Dr. Doyle gave a very interesting review of political psychology in South America, which is believed to be largely responsible for the prevalence of revolutions. In addition, he answered many questions regarding particular revolutions and expressed skepticism of the rumors that some recent revolutions and wars in South America might have been fostered by large United States corporations in the belief that an opportunity would be afforded to advance their interests.

The members present included: Francis G. Wells '22, E. S. Hope '26, Paul Weeks '02, R. T. Stone '12, J. C. Dort '09, W. I. Swanton '93, H. G. Hamlet '96, S. G. Nordlinger '32, W. K. MacMahon '22, A. L. Sherman '06, T. C. Atwood '97, A. B. McDaniel '01, E. W. James '07, G. V. Patrick '28, J. A. Fitch '24, E. D. Merrill '09, Allen Pope '07, W. E. Lutz '17, O. G. Green '30, K. P. Armstrong '10, A. E. Hanson '14, and J. Y. Houghton '26.

The Annual Dinner and Ladies' Night of the Society was held at the Lafayette Hotel, March 10, and the guests of honor were President Karl T. Compton and Dr. Vannevar Bush, who gave a rather thorough review of most of the activities now pursued at M. I. T.

Dr. Compton presented numerous graphs and much statistical data concerning the progress of enrollment in the various courses and in the Institute as a whole, as well as interesting data concerning the small percentage of unemployment and its distribution throughout the several courses. He also gave interesting data concerning the matter of publicity, open-house night and other steps being taken to maintain and augment the prestige of the Institute.

Dr. Bush dealt more with the activity in research and surprised the meeting with descriptions of some of the phenomenal activities now being pursued.

Preceding the speakers, the Society was entertained by an octet of prominent members, accompanied at the piano by Mrs. Frederick A. Hunnewell, and further diversion was afforded by Dr. Charles G. Abbot '94, who gave a most resonant, unaccompanied solo of the famous ditty in which the hero is dragged to the North Pole by a whale.

Following the speeches, the hall was cleared and dancing progressed far, far into the night.

Among those present were the following guests of the Society: Dr. Karl T. Compton, Dr. Vannevar Bush, Mr. and Mrs. Wilson Compton, Dr. F. G. Cottrell, Dr. C. H. Kunsman, Mrs. C. H. Kunsman, and Dr. and Mrs. M. A. Tuve.

The following members and an equal number of members' guests were also present: R. L. Sumwalt, Redfield Proctor, C. H. Stratton, T. C. Atwood, K. P. Armstrong, W. Lorrain Cook, W. M. Corse, Irving M. Dow, N. C. Grover, Lyman F. Hewins, Parker Dodge, C. G. Abbot, Proctor L. Dougherty, F. E. Fowle, H. G. Hamlet, R. A. Hammar, A. E. Hansen, J. C. Hawley, A. M. Holcombe, Nathan Howitt, F. A. Hunnewell, William E. Lutz, A. B. McDaniel, E. D. Merrill, Henry C. Morris, H. M. Phillips, J. Garfield Riley, M. L. Sperry, G. W. Stone, Frederick W. Swanton, W. I. Swanton, William E. Swift, Francis Walker, Harry E. Whitaker, Frederick Wilcutt, H. W. Tyler, and J. Y. Houghton.

The sixth regular meeting of the Season was held at the University Club March 30, being placed at this date to enable attendance by members of the American Chemical Society and so that we might have as our speaker of the occasion Dr. Allan Winter Rowe '01, President of the Alumni Association and Chairman of the Advisory Committee on Athletics.

As unemployment is the vital question of the hour, Dr. Rowe was bombarded with questions concerning the matter, answering most of them and parrying with his customary skill the embarrassing ones as to how much more unemployment was known to exist among graduates of other institutions than among those of M. I. T.

In addition, Dr. Rowe gave a full account of the present athletic activities of the Institute and of the honors achieved by the outstanding stars, which showed that athletics are progressing considerably faster than most of the alumni had appreciated.

Among the members present were the following: Irving M. Dow '30, John Nolan, Jr. '20, William M. Corse '99, H. J. Skinner '99, J. C. Dort '09, G. H. Southard 3d '23, J. A. Fitch '24, S. G. Nordlinger '32, William K. MacMahon '22, R. A. Pouchain '17, Currier Lang '04, A. M. Holcombe '04, A. E. Hansen '14, B. E. Sherrill '27, H. W. Tyler '84, R. E. Bakenhus '96, T. C. Atwood '97, A. E. Beitzell '28, C. B. Allen, Jr. '29, D. E. Perry '28, G. V. Patrick '28, O. G. Green '30, J. Garfield Riley '06, R. T. Stone '12, W. I. Swanton '93, F. W. Swanton '90, John Boyle, Jr. '01, E. T. Steel '06, Proctor L. Dougherty '97, Allen Pope '07, Allan Winter Rowe '01, and Joseph Y. Houghton '26.

The seventh regular meeting of the Season was held at the University Club April 21, the speaker of the occasion being Dr. Paul R. Heyl of the Bureau of Standards, who reviewed the old and somewhat exploded theories of gravitation and propounded the newer theories thereof, including an introduction to the

unified field theory and conception of curved space now under discussion in scientific circles.

Dr. Heyl explained the tests which have disproved so many theories in the past, the principal one of which has been the fact that it has not yet been possible in any way to screen gravitation as would follow from most of the early theories.

To illustrate curved space he mentioned what would happen if one should slide a golf ball along a smooth field of ice having a small hollow in the path of the ball. If the ball went into the hollow nearly tangentially, it would simply come out at the other side of the hollow with a slightly changed direction of motion. As it is conceived that a body in space, such as the sun, produces a fourth dimensional hollow or curvature of the space around it, which would cause a deflection of any ray of light passing through it, this hypothesis will explain many things. For example, with a sufficiently deep hollow in the ice, the ball would be trapped and run around the sides of the hollow without escaping. In the same way, with a sufficient curved space about the sun, planets and comets might well be trapped therein like the golf ball in the ice, thereafter revolving about the sun.

The hypotheses advanced caused much discussion and many questions by the members present who included the following: Proctor L. Dougherty '97, Samuel Bensinger '31, S. G. Nordlinger '32, H. G. Hamlet '96, W. I. Swanton '93, W. F. Swanton '33, A. M. Holcombe '04, W. E. Lutz '17, E. D. Merrill '09, Allen Pope '07, E. H. Lloyd '33, W. K. MacMahon '22, Frank K. MacMahon '33, Irving M. Dow '30, H. P. Emerson '28, H. E. Whitaker '09, William E. Swift '95, J. Garfield Riley '06, Paul Weeks '02, H. W. Tyler '84, and J. Y. Houghton '26.

The last regular meeting of the 1932-33 Season was held at the University Club May 19.

The guest and speaker of the occasion was Dr. Oliver L. Fassig, Chief of the Division of Climatology of the United States Weather Bureau and formerly in charge of the Weather Bureau's West Indies and Caribbean Service.

Dr. Fassig gave a first-hand account of several of the more violent hurricanes of the West Indies and illustrated his talk with atmospheric pressure and temperature charts and charts of wind velocity and rainfall which gave the Society a clear picture of the progress of a hurricane.

Strangely enough, it was demonstrated by Dr. Fassig that the main loss of life in the West Indies hurricanes is not caused by the wind velocity but results from the extremely heavy rainfall flooding the valleys of the Islands before the inhabitants can escape if they have not been warned of the approaching storm. A comparatively small number of lives are lost through flying debris.

Dr. Fassig left the Society with a problem as to how much force was expended in one instance in which the wind tore a strip of siding from a house and drove it butt end first straight through the trunk

of a Royal Palm, converting the palm into a natural cross. He mentioned that the wind velocity at the time was not known, but was considerably higher than 160 miles an hour because the storm had increased since that velocity was reached and that velocity was the maximum recorded before the wind gauge was destroyed by the storm. He estimated that at the time the wind velocity was about 200 miles an hour.

Among those present were the following members: E. D. Merrill '09, W. E. Lutz '18, Francis G. Wells '22, Oliver G. Green '30, D. S. Stanley, Jr. '30, A. M. Holcombe '04, Samuel Bensinger '31, William E. Swift '95, T. C. Atwood '97, Allen Pope '07, Allen B. McDaniel '01, Proctor L. Dougherty '97, Harry E. Whitaker '09, John H. Gregory '95, Louis J. Grayson '19, W. I. Swanton '93, W. K. MacMahon '22, H. W. Tyler '84, and the Secretary. — J. Y. HOUGHTON '26, *Secretary*, 402 Shepherd Street, Chevy Chase, Md.

The M. I. T. Club of Western Pennsylvania

The club held its regular monthly dinner meeting on Tuesday, May 2, 1933, at the University Club of Pittsburgh. In response to popular demand, the Dutch Supper with beer, so successful at the February meeting, was repeated.

We were fortunate in having Mr. T. Park Hay, Director of Public Relations, Transcontinental and Western Air, Incorporated, as our guest. He gave us a fine talk, illustrated with charts on the history and development of commercial aviation in the United States, and also in other parts of the American continents.

Of special interest to the club were the descriptions of the new developments in progress to secure greater speeds, safer flying in bad weather, and quieter plane cabins.

At this writing arrangements are being made for the annual banquet of the club the latter part of June. — C. M. Boardman '25, *Assistant Secretary*, Duquesne Light Company, Pittsburgh, Pa.

CLASS NOTES

1876

The Marquis of Douglas and Clydesdale, M. P., who recently made history by his remarkable flight over Mt. Everest, is a Douglas, a cousin of Charles R. Fletcher '76, on his mother's side. Fletcher is quite elated with this accomplishment and thinks that all M. I. T. men will rejoice in its successful accomplishment.

Arthur L. Mills was born in Charlestown, Mass., on June 16, 1855. He died in Mexico on December 13, 1932. His early training was in the public schools in Charlestown. He entered the Institute in 1872, graduating in 1876 in the Department of Civil Engineering.

Mills had one distinctive office in his sophomore year which, so far as I know,

was never duplicated. He had a dislike for military drill, and persuaded our drill master, Lieutenant Zalinski, to create an office of sixth sergeant and to appoint Mills to that office as Clerk of the Battalion.

It was almost as difficult in 1876 to get a job as it is now, but Mills obtained work from 1876 to 1878 with the Harbor and Land Commission on Improvements of the South Boston Flats on the construction of the sea wall and filling for wharves and railroad terminal.

In 1879 he began his work in connection with railroads which was his chief occupation for the greater part of his life. Beginning with the Atchison, Topeka and Santa Fe on location and construction from Las Vegas, N. M., to the Rio Grande. There was one year's interim, 1880, when he was assistant to city engineer, Chelsea, Mass., on the rebuilding of the Chelsea bridge and Mystic River improvement, and resident engineer for E. S. Philbrick on the design and construction of a sewer system for Princeton University.

He renewed his railroad work in 1881 which was continued until 1898 with various positions, some of which follow: Principal assistant engineer, superintendent of construction and chief engineer in charge of relocation and construction of the California Southern Railway through Temecula Canyon, including design of bridges; assistant engineer in charge of construction of the Boston, Hoosac Tunnel and Western Railroad to Rotterdam Junction and of rehabilitation work; resident engineer, South Pennsylvania Railroad on heavy construction; principal assistant engineer in charge of gage, Toledo, St. Louis and Kansas City Railroad; chief engineer of above railroad on rehabilitation, developing a new system of economic momentum grades; finally becoming general superintendent; for a time, purchasing agent and receiver of Coffin Coal Mining Company.

Then there was an interim from 1898 to 1913 during which he was engaged in wholesale grain merchandising and supervising investments near Mexico City. During this period he did miscellaneous consulting engineering. In 1914 he again returned to his railroad work as general manager and receiver for the Fort Smith and Western Railroad and the St. Louis, El Reno and Western Railroad, which position he held until 1921.

About this time Mills became so crippled with rheumatism that it was impossible for him to do any further active work, but he was brave and his mind was as clear and as active as ever. About a month before his death he wrote me that he had given much thought to what the future had in store for industry and engineers, and had concluded that there should be some public control regulating production, that new units of production should not be added unless it were shown that they would be of public benefit, in the same way that a new railroad cannot be built unless it can be shown to the Interstate Commerce Commission that it is a public necessity. He thought that

1876 Continued

work for engineers would be retarded for some time. — CHARLES T. MAIN, *Secretary*, 201 Devonshire Street, Boston, Mass.

1880

No news from any member of the Class, of which Hamilton is the only graduate whose whereabouts I know. Hence, the Secretary can only write of his own doings. He is still Director of the Teachers' School of Science, which has four departments: Botany, Geography, Geology, and Zoölogy. Two Harvard Professors give the instruction in botany and zoölogy, respectively, and Mrs. Thomas, of Ginn and Company, gives the geography, each having one or more assistants. The Secretary, with an assistant, gives the instruction in geology, having two large classes.

The Secretary recently visited his son, Donald C. Barton, Ph.D., Harvard '14, and Special, M. I. T. '11, who is a consultant geologist and geophysicist at Houston, Texas. The latter is married and has one daughter. With the Secretary was his daughter, Mrs. Harold F. Eastman, and her two daughters. While in Texas my son took us to San Antonio, where we visited the Alamo, five old Spanish Missions, and the Park with its sunken gardens. Then we spent two nights in Laredo, crossing the Rio Grande into Mexico for dinner each evening. While in Laredo, my son was expert witness in an oil suit trial. Then we stopped one night in Corpus Christi before going back to Houston.

From Saturday afternoon to Friday morning we were on a steamer from Galveston to New York, stopping a few hours at Charleston, S. C., where we took a ride around the city to see the various points of historic interest. The sea was very smooth and we had a very pleasant voyage. — GEORGE H. BARTON, *Secretary*, 89 Trowbridge Street, Cambridge, Mass.

1882

Under date of May 13, Charles Jenkins writes from his home in Scituate the following account of a well-earned vacation in the Sunny South.

"Last December Mrs. Jenkins and I decided to take an automobile trip to celebrate my retirement after many years service with the Commonwealth of Massachusetts. As you know, I had the great honor of carrying on the office established by President Rogers in 1861, that of inspecting gas, and so on.

"After several days' delightful touring, over wonderful roads, we arrived in St. Petersburg, Fla., and instead of going on, stayed there five months. We might have been there yet if a birthday date had not approached.

"On the way down we ran the heater in the car well into Georgia but from then on white linen and straw hats were the rule, except when bathing in the Gulf of Mexico. An evening newspaper in St. Petersburg gives away its entire edition if the sun does not shine any day up to the time of going to press. We had one copy.

"I like to play with photography and in a short time my admiration for the

palms as subjects led me to try to identify them. But when I found there are between 1,200 and 1,500 species in the world I turned to other things, although I fell in love with *Roystonea regia* and *Phoenix canariensis*.

"The fountains of youth with their H₂S waters, the strange fishes and tame pelicans, the warmth of the Gulf water for bathing, the wonderful roads and street lighting, and the continual sunshine in a clear atmosphere free from smoke, with a temperature ranging from 70°-86° — all linger pleasantly in my memory. The 'Sunshine City' lived up to its name.

"We came back to rain, fog, and mist with a temperature of 52°, but that is New England and we are glad to be here."

Edward Nichols, for a year a member of the Class of '82, as a special student in architecture, died suddenly February 21, 1933, aged 68. He was a native and lifelong resident of Cohasset, where a number of buildings from his designs were built. Among them the Paul Pratt Memorial Library, the Town Hall, and the Osgood School.

While a draughtsman in the office of Mr. Willard Sears, he was instrumental in designing Fenway Court, the home of the late Mrs. John L. Gardner.

Mr. Nichols had an office for the practice of architecture at 136 Boylston Street, Boston. He was an active member of the First Parish Unitarian Church, Cohasset, a trustee of the Paul Pratt Memorial Library, and a director of the Cohasset Savings Bank.

Besides his wife he is survived by two married daughters and four sisters. — ALFRED L. DARROW, *Secretary*, 39 Garrison Road, Brookline, Mass. Rachel P. Snow, *Assistant Secretary*, 56 Leighton Road, Wellesley, Mass.

1883

Edward A. Chapel, an associate member of the Class, died on September 26, 1932. — DWIGHT F. BOYDEN, another associate member of the Class, lately residing at 3405 Greenway, Baltimore, Md., died suddenly at Hot Springs, Va., as the result of an appendicitis operation. This news comes as a great shock to the members of the Class, who were fully expecting to have him present at our Fiftieth Anniversary Reunion. — DAVID WESSON, *Secretary*, 111 South Mountain Avenue, Montclair, N. J.

1884

The Secretary has recently learned, through the Chinese Institute of Engineers at Shanghai, of the decease of Pah Liang Fong in 1925 and of King Young Kwong in 1931; with the chaotic conditions in China the delay is not surprising.

Kwong's death severs the last connection of '84 with China. It will be remembered that Fong, the two Kwongs, Sik, Sung, Tyng, and Yang were with us only during our first year, and returned to China in August, 1881. Some of them came here as early as 1874 when 11 or 14 years old, attending such fitting schools as Williston Seminary. The story of their

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recall was that some of the Chinese students who had been studying in America, had forgotten so much of their own language and customs as to cause anger and apprehension on the part of some of the high officials before whom they appeared on their return. All Chinese students in the country were recalled and few appeared until after the Boxer incident about 1900.

Yang and Sik went down with their ship the *Yang Woo* during a naval engagement with the French at Mamoi, Foochow, in 1882. H. C. Kwong (the shorter one) was killed in battle in 1889. Tyng was killed in the battle of Niu in 1898. Sung died in 1913; he was commander of the cruiser *Kwang Cha* which was sunk by the Japanese in the battle of Yalu, when he was rescued by a fishing boat. He left the navy to take charge of a mercury smelter for eight years, when he rejoined the navy as commander of a gunboat.

Fong taught 22 years at the government telegraph school at Canton, then was in the Railway and Mining College at Tongshan, and finally in the Bureau of Agriculture, Industry, and Commerce at Mukden.

K. Y. Kwong persisted in his desire to learn civil engineering, with the result that he became one of the most eminent in the profession. His first five years were spent with a coal mining concern, and then he was one of the very first who took part in the building of the first railway in China, the Tongshan-Tientsin line in 1887. He was an engineer on the construction of various railways, until in 1903 he rejoined the Imperial Railways in North China. With them he built several large bridges, and the Peking-Kalgan and Canton-Hankow lines. He finally became engineer-in-chief of the Government railways in China.

The Secretary has received word of the death in April, of Hugh Hamill, Deputy Collector of Customs at Boston. He was in the School of Mechanic Arts and was classed with '84 although known to but few of us.

The Secretary saw a notice of the death in Virginia of Willard Hart Furbish who was with us in Civil Engineering; burial was in Portland, Maine. He lived for a time in Berlin, N. H., and was a traveling salesman. — AUGUSTUS H. GILL, *Secretary*, Room 4-053, M. I. T., Cambridge, Mass.

1886

Classmates and a host of friends throughout the state and nation mourn the passing of Charles Carroll Peirce, who died May 27 at his home, Twin Ash Farm, in Medfield, Mass., after a long illness. Born in Skowhegan, Maine, in 1864, he entered the Institute with the Class of '86, coming from Newport, R. I. He early endeared himself to his classmates by his earnestness, his jovial enthusiasm, and his athletic skill.

He left college in 1884 to enter the employ of the Old Colony Steamboat Company, of which his father was superintendent. From the office of this company

1886 Continued

he was sent to inspect the machinery being built for the Old Colony Company's steamboats by the Cramp Shipbuilding Company of Philadelphia.

In 1890 he began work for the Edison General Electric Company. Two years later when the General Electric Company was organized, he was made district manager of its railroad department with headquarters in Boston. His connection with this organization continued without a break until his retirement from active business two years ago.

In addition to his engineering and business activities, he was prominent in social and political affairs. A Republican in politics, he was particularly active in campaigns of the late John W. Weeks and in the campaign that resulted in the election to the Presidency of the late Warren G. Harding. It was during this campaign that one of his political friends in Washington is reported to have said that Charlie Peirce was the best story teller in the United States.

His fund of anecdotes, together with his inimitable skill in delivery, made him the center of enthusiasm at the almost numberless social, political, and business meetings and organizations of which he was a member. In 1888 he married Miss Rebecca E. Fales, who died in 1917. He leaves one son, George Peirce, of Bristol, R. I.

George P. Aborn, who has been with the Harvard Trust Company of Cambridge since his retirement from the manufacture of steam pumping machinery several years ago, was recently elected President of the Cambridge Industrial Association.

Professor Edward F. Miller died in Newton Centre on June 12. — ARTHUR G. ROBBINS, *Secretary*, 12 Grove Street, Winchester, Mass.

1888

It is your Secretary's sad duty once more to record the loss of a classmate by death. Minturn T. Wright, a prominent Philadelphia financial and real estate man, died on March 3, 1933, at his home in Chestnut Hill, Philadelphia. The cause of his death was heart failure. Wright was born in Philadelphia, February 19, 1867, and before attending Technology went to Cornwall Heights School at Cornwall on the Hudson and Germantown Academy in Germantown, Philadelphia. He was married on October 22, 1895, to Miss Ethel Story Jenks and is survived by her and his three sons, William Jenks, Minturn T., Jr., and John Story Wright.

After leaving Technology, he was connected with the United Gas Improvement Company till 1894, then with the Girard Trust Company of Philadelphia till 1914, during most of which time he was Real Estate Officer. From 1914 to 1922 he was with Minturn T. Wright and Company, doing real estate and insurance business and since 1922 he had not been in active business. At the time of Wright's death he was a very much interested member of the Institute of Pacific Relations and a member of the Philadelphia Cricket Club, the well-known Country Club in

Chestnut Hill. His principal hobbies were golf, motoring, and travel. He was very popular with his classmates at Technology on account of his genial character. He attended our Fortieth Reunion at Chebeague Island in 1928 and gave us much pleasure in renewing our acquaintanceship with him. He will never be forgotten by his classmates of '88.

Ned Webster was elected a director of the United Fruit Company at their annual meeting in March. According to the annual report, this company is in a stronger financial condition than in 1931.

Our classmate, W. G. Besler, Chairman of the Board of the Central Railroad of New Jersey, has two very remarkable sons, George D., 31, and William J., 29. They have recently successfully demonstrated the first practical steam-powered airplane. The engine consists of two cylinders, developing 90 horse power in the air. It weighs 500 pounds and uses a steam pressure of 1,500 pounds. The following is taken from the *New York Daily News* of April 18, 1933: "A public demonstration of a steam-powered airplane was given here today by its creators, William J. and George Besler, sons of W. G. Besler, Chairman of the Board of the New Jersey Central Railroad. Private tests of the plane were made last week.

"Piloted by William J. Besler, the plane flew about for a considerable time and then performed various tricks in landing and taking off. One of the features shown was the ability to come to a quick stop after landing by reversing the motor and running the propeller backward. Landing at 50 miles an hour, it was able to stop in that manner within about 100 feet.

"A feature of the plane was its silence. Flying 100 feet above a group of spectators, William Besler leaned out of the cockpit and shouted 'Hello.' He was heard plainly on the ground.

"He said the plane would travel 100 miles on about 40 cents' worth of fuel oil and was capable of a cruising speed of 100 miles an hour.

"The pilot said the plane was capable of flying two minutes after firing up the boiler, and that the only engine control in the cockpit was the throttle.

"The Beslers said they would not further develop the engine for airplane use at present, but would turn their efforts toward production of railway equipment in the plant owned by their father in Davenport, Ia.

"The Besler brothers are graduates of Princeton University and have been working on the engine about three years, having developed several new departures in steam engine construction."

At this writing between 21 and 31 classmates are expected at the Forty-Fifth Reunion at Rockport, June 9 to 11. Full details of that event will appear in the next issue of *The Review*. — The address below is correct until November, 1933. — BERTRAND R. T. COLLINS, *Secretary*, Chebeague Island, Maine.

1890

We have just been advised of the address change of George B. McBean of Chicago. McBean was only with us our freshman year, and this is the only word we have ever had from him.

We note in the Social Column that Charles Hayden joined a prominent New York group, including Princess Miquel de Braganza, at Virginia Hot Springs over Easter.

Mr. and Mrs. Cabot J. Morse have recently returned from the South. They were at Pinehurst from the middle of December until the middle of January; then they went to Augusta, Ga., stopping a few days at the Vanderbilt before returning to their home on Dartmouth Street, Boston.

William Z. Ripley, who has been in Holland for some months recovering from his illness, on March 1 became Professor Emeritus at Harvard College. John H. Williams was elected on April 19 as his successor. This marks the retirement of Professor Ripley, who was recognized as one of the greatest authorities on the economics of railroad corporations and labor in the United States.

We have been advised of the death of Bowen B. Smith of New York, on October 27, 1932. — Change of address is noted for Sidney E. Horton, formerly of Cleveland, Ohio, to 33 Deerfield Avenue, Hartford, Conn.

The following item of news appeared in the *Boston Globe* of February 24: "George W. Fuller, an engineering pioneer in the development of water purification systems for municipalities, has been named chairman of the Engineering Foundation, the research organization for the senior national societies of civil, mining and metallurgical, mechanical, and electrical engineers.

"Fuller, a member of the firm of Fuller and McClintock, New York, was born in Franklin, Mass., attended the M. I. T., and was in charge of the Lawrence, Mass., Board of Health experiment station. Since 1899 he has been adviser for filtration plants in New York, Baltimore, Washington, New Orleans, Columbus, Grand Rapids, and other cities." — GEORGE L. GILMORE, *Secretary*, 57 Hancock Street, Lexington, Mass.

1893

The Fortieth Reunion was held at the Essex County Club, Manchester, Mass., on Saturday and Sunday, June 3 and 4, ending with tea Sunday afternoon at "Lone Tree Farm" in Hamilton, the home of our Class President, William Stuart Forbes. The necessity for having the class news for the current issue in the printer's hands prior to the reunion date precludes giving here the detailed report of this event which will appear in the next number of *The Review*. President Compton, honorary member of the Class, and Mrs. Compton accepted the invitation to participate with other class members and their ladies in the festivities attendant upon the observance of the passing of this important milestone in '93's class history.

1893 Continued

The event of outstanding social interest at the Reunion was the attendance, and active participation in the program as host and hostess, of President Forbes and his bride, the former Mrs. Potter Cox of New York. Mr. and Mrs. Forbes were married May 5 at the home of Mrs. Cox's brother, Edwin A. Potter, Jr., at Roslyn, L. I. They sailed that night from New York for a short trip to England and Ireland from which they returned June 1 to take up their residence at "Lone Tree Farm." It is learned that Mrs. Forbes, even more than her husband, insisted on cutting short this wedding journey in order to take part in the Reunion.

The following notice of the marriage of Faith Bemis, eldest daughter of Mr. and Mrs. Albert Farwell Bemis appeared in the Boston *Transcript* on May 20: "Miss Faith Bemis became the bride of John Gaw Meem at the home of her parents, Mr. and Mrs. Albert Farwell Bemis, in Chestnut Hill at noon today. The wedding was a very small one, for members of the families only, and the bride was attended by her two sisters, Miss Alice Bemis, whose engagement to Charles Goodrich Thompson of Chestnut Hill was announced on April 22, and Miss Marjorie Bemis, a younger sister. Rev. Arthur B. Kinsolving, recently appointed dean of the Cathedral of Long Island in Garden City, L. I., came on to perform the ceremony. James Meem, now a student at Virginia Military Institute, was his brother's best man. Mr. Meem also attended V. M. I. He is the son of Mrs. John Gaw Meem of Rio Janeiro, Brazil, formerly of Virginia, and the late Rev. John Gaw Meem, archdeacon of Brazil. The bride attended Vassar for two years, and was graduated from the Cambridge School of Domestic Architecture and Landscape Architecture. She was given in marriage by her father. A wedding breakfast was served immediately after the ceremony. Mr. and Mrs. Meem will live in Santa Fe, N. M., where they will be 'at home' after the first of July. Mr. Meem, who is a prominent architect, has made his home there for nearly ten years. His bride practiced architecture in Santa Fe for two years, returning to Boston in March, when the engagement was announced."

Concluding more than 35 years of service with the organization, Albert G. Davis, Vice-President of the General Electric Company in charge of patents, retired on May 1. Upon his retirement, Davis entered the law firm of Pennie, Davis, Marvin and Edmonds, at 165 Broadway, New York. This firm, which specializes in patent work, already includes his younger brother, William H. Davis. Albert G. Davis is a native of Bangor, Maine, where he was born in 1871. Graduating in 1893 from M. I. T., he held a position in the United States patent office at Washington as an assistant examiner from 1894 to 1896 when he opened an office in Washington as a patent attorney and in this interval he handled some patent work for the General Electric Company. His services in these cases attracted the attention of

the late Frederick P. Fish, veteran patent lawyer of the old Thomson-Houston Electric Company, and later of the General Electric Company. In December, 1897, the same year in which Davis was admitted to the bar in Washington, after completing a course at the National Law School, he was offered, through Mr. Fish, the post of manager of the General Electric Company's patent department, which he accepted. The electrical industry just then was entering upon its great high tide of pioneer development, a trend which kept up for 25 years. The grist of inventions was enormous and the responsibility for discerning which inventions in years to come would be indispensable and which were relatively unimportant was a heavy one. This work, however, was painstakingly directed by Davis in behalf of General Electric, and he carried it forward with pronounced success. In recognition of his record he was appointed on November 21, 1919, a vice-president of the company. Davis will retain his Schenectady residence, which will become from henceforth largely a summer home for him and his family.

Daniel D. Jackson's election last year as President of the American Section of the international organization of the Society of Chemical Industry, brought forth the following notice (with an excellent picture of "D.D.") in the 1932 fall number of the *Bulletin de la Société de Chimie Industrielle* published in Paris (how many members 40 years out can still read French?): "Le Dr. D. D. Jackson a été désigné comme nouveau Président de la section américaine de la Société de Chimie Industrielle en remplacement du Dr. G. F. Kunz. Il est né à Gloucester d'une vieille famille de la Nouvelle Angleterre. Il fit ses études au Massachusetts Institute of Technology et conquiert son diplôme à l'Université de New York. Il est plus Docteur des sciences de l'université de Pittsburgh. Son activité s'est exercée dans trois directions distinctes. D'une part, Doyen de l'Ecole de Photographie militaire, professeur à l'Ecole des Explosifs, membre du Comité consultatif des camps d'instruction et d'autres sociétés similaires, le Dr. Jackson s'est toujours consacré à ces questions de défense nationale. D'un autre côté, il s'est occupé de façon approfondie de la chimie des eaux et fut successivement chimiste aux services des eaux de Boston, puis au Comité d'Hygiène de l'Etat de Massachusetts, chimiste en chef du service des eaux de Brooklyn et directeur des laboratoires du Service des Eaux, du Gaz et de l'Electricité à New-York. Enfin, il conquiert une place de premier plan dans le corps enseignant, professant depuis 20 ans à la Columbia University. Le Dr. Jackson est membre de nombreuses sociétés savantes américaines, Président de la Section de New-York de l'American Institute of Chemists et Membre du Conseil de l'American Chemical Society. Enfin, on peut signaler également son activité industrielle. Il compte parmi les dirigeants de trois importantes compagnies et est le conseil de plusieurs villes et sociétés industrielles. Notre Association

est heureuse de voir le Dr. Jackson à la tête de sa section américaine et est persuadée que, sous sa haute direction, cette dernière continuera avec succès à remplir son rôle de collaboration et de rapprochement entre les chimistes américains et français."

Correspondence incident to the reunion disclosed the loss by death of four members of the Class: Francis DuPont Balch, who died on April 1, 1933; Alfred E. Draper, who died December 19, 1932; Sidney S. Emery (date of death unknown); and Walter H. Vorce, who died August 23, 1930. Francis DuPont Balch at the time of his death was Vice-President of J. A. Montgomery, Inc., general insurance brokers of New York City and Wilmington, Del. It was in Wilmington that Balch had lived for many years. Frank was a son of the late Rear Admiral George Beall Balch, a former Superintendent of the United States Naval Academy at Annapolis. Frank studied architecture with the Class, and after four years' work in architectural offices in Boston, Baltimore, and Philadelphia, he entered the insurance field. For 20 years prior to 1918 he was with the Liverpool and London and Globe Insurance Company, Ltd., for a considerable part of the period as Superintendent of the Special Risk Division. In 1918 he resigned to become manager of the New York office of J. A. Montgomery, Inc., later being promoted to the vice-presidency and being placed in charge of the company's Wilmington office. He married Miss Gertrude Leavitt in 1905 and is survived by his wife and a daughter, Gertrude H., a son, Franklin L., and two sisters, Mrs. Malcolm Gordon of Garrison, N. Y., and Mrs. Frederick Sears of Concord, N. H.

Alfred E. Draper was a student with the Class only during our freshman year. Throughout his life he made his home in Canton, Mass., where he was associated with the Draper Brothers Company.

Sidney S. Emery, special student of the class in the senior year, was an industrial chemist who devoted most of his life work to the high explosive field with the E. I. du Pont de Nemours Powder Company, and during and since the war was chief chemist of that company's plant at Louviers, Colo. Emery was married in 1896 to Miss Anna Payne Butler and they had one son, Loring. Emery was active in the Rocky Mountain Technology Club at Denver.

Walter H. Vorce will be remembered as President of the Class in our freshman year. In 1893 he entered the service of the New York Central Railroad at Rochester, where he rose to the position of Assistant Superintendent of Signals. Since 1901 he had been located at St. Albans, Vt., as manager of the St. Albans Electric Light and Power Company, and Treasurer-Secretary of the Vermont Power and Manufacturing Company. Vorce married, in 1898, Miss Mabel Newell and they had two daughters, Catherine Newell and Elizabeth.

The following changes of address are noted: C. Royce Boss, Eastern Point,

1893 Continued

Groton, Conn.; James P. Buckley, 2238 W. 111th Street, Chicago, Ill.; William H. Graves, Fenway Studio 208, Boston; John C. Hawley, R. D. 4, Madison, Wis.; Edmund I. Leeds, 46 Waverly Avenue, Newton, Mass. — FREDERIC H. FAY, *Secretary*, 44 School Street, Boston, Mass. GEORGE B. GLIDDEN, *Assistant Secretary*, P. O. Box 1604, Boston, Mass.

1894

The Secretary has recently been greatly pleased to receive letters from W. H. Sayward, Jr. He writes from Shelburne Falls, "At present I am on an extended visit to my oldest son Bill. For many years past the state of my health put me 'out of the running,' but now I am up here in Franklin County, Mass. To those who know it, that is sufficient. It is a paradise for the hiker and the lover of outdoor occupations, landscape, and historical associations. I find plenty to occupy my time and have one or two serious aims toward which I am directing my efforts. One is the professional reading (recitation) of plays for which I expect to be prepared and equipped shortly. I am also greatly interested in Boy Scouting and am a 'Scouter' (member of Troop Committee) of Troop 15, Shelburne Falls. Golf is a keen interest and, like all golfers, I hope to do better.' Water color sketching greatly appeals to me and for the last year I have followed its lure (in the rearward ranks) with very great pleasure to myself, and others don't have to say what they think!

"You say '94 is 40 in 1934. Well, I'm sure thankful to have come through. All experiences that have eventuated make us members of '94 something different from what we were on that day when we left M. I. T. back in 1894. And here's hoping to see many of the fellows before long."

Sayward writes that his older son, William, is connected with the Griswold Manufacturing Company. His younger son, Parkman, is "in oil" in Texas. His third son, John, is a junior at Brown, and his daughter, Mary, is studying design at the Boston Museum of Fine Arts. Apparently he has an entirely justifiable pride in his offspring.

Another '94 man, J. C. Nowell, recently gave the Secretary great pleasure by a personal call. John and his wife came East for a short visit to their daughter, and he spent a brief hour at the Institute with a promise to return before going back to his California home. He still lives in San Mateo, and since his retirement from active work as General Manager of the Pacific Tel. & Tel. he has busied himself with civic affairs and good works. He is now a sort of county manager and spends his mornings on public affairs, and, I suspect, his afternoons on golf. He reports that Prescott Coolidge is living in Cornell, he also having retired after many years as Chief Engineer of the Pacific T. & T. On his way East he stopped in Omaha to see his old "alter ego," Arthur Rogers, another telephone man. John recalls with pleasure how he and Rogers always teamed up on class

work when at Tech. It may be doubted whether some of the instructing staff ever really knew which was Nowell and which was Rogers, for they were always together, and each had been known to answer for the other in class. The Secretary's last glimpse of Jack before the present meeting was in January, 1919, when as an army officer, he spent an enjoyable evening in San Mateo while on a tour of inspection.

F. A. Schiertz has removed from Jersey City to Roebing, N. J. He is now engaged on the interesting job of making the chemical test of the steel to be used in the construction of the new bridge to connect San Francisco with Oakland. The Secretary understands that all the steel for this structure is being fabricated at a plant in New Jersey, and it is up to Ferdinand to see that it conforms to the specifications. While Schiertz yearns to get back to mining in Mexico, it is probable that for the next few months he will be busy on his present assignment.

J. E. Thropp, Jr., has recently sent in a new address: 400 Elm Street, Chevy Chase, Md. Any of the class visiting Washington should find it easy to call him up and exchange greetings.

These notes are written in the busy days immediately preceding graduation. It is quite a different affair from that we went through in Huntington Hall in '94, but the class will be represented in the line of 600 who receive their degrees in Symphony Hall on June 6. H. W. Gardner's son, John, receives his S.B. in Industrial Biology, and Prescott's son, Samuel, in Business and Engineering Administration. Possibly there are other '94 sons in the class, which has a considerable number of sons of M. I. T. graduates.

It is perhaps not too early to remind all classmates that next year we celebrate the Fortieth Anniversary of our graduation. Suggestions as to the place and activities which will make the event a suitable and pleasant celebration of this important event will be received with acclaim. Recollections of our former most enjoyable reunions will, I trust, stir many of you to action. Send in your ideas so that we can get plans under consideration in the autumn.

A happy and prosperous summer to all. — SAMUEL C. PRESCOTT, *Secretary*, Room 10-405, M. I. T., Cambridge, Mass.

1895

The news this month covers a variety of subjects. Al Zapf writes from Orange, Calif., of his interesting experience in the recent earthquake. "No description or pictures can give you any conception of the awful scene of devastation in Long Beach and Compton; large churches and school houses one mass of fragments; houses moved off of foundations, and standing in all sorts of drunken positions; front walls sheared off showing rooms with the table set for dinner; bed rooms, bath rooms, and living rooms just as they were abandoned, all open to the street. You just can't imagine the scene of ruin and destruction. And to think that this was all done in less than a minute. Orange

was favored. Less than a mile from our house ruins became visible, while in Santa Ana, barely three miles away, almost the entire business section was so badly damaged that merchants had to move out.

"An earthquake is a strange sensation. There is nothing quite like it, and it leaves you with very shaky knees and short breath. There is nothing solid left for you to go to as everything sways. I have felt several quakes but nothing like this. The big quake was at 5.55 P.M., Friday, March 10. We were just sitting down to supper when suddenly there was a strange rushing noise and the house began to creak and heave and rock. The floor lamps began to totter and everything loose to sway. There was a succession of movements with a bit of pause between. I sat sort of paralyzed. All I could think of was that with the next heave the ceiling will come down. The lights went out and we finally managed to rush our doors. Everybody was on the road talking in great excitement and looking to see what damage was done. Soon the lights came back and with them the radio and then news from Santa Ana, Compton, Long Beach made us realize that there had been a terrible disaster.

"The whistles blew to summon the militia and legion and the air was full of wild rumors. Fortunately the fleet was in at Long Beach, and the sailors and marines, and soldiers from Fort McArthur immediately took charge, roped off streets and kept back the people. The first quake was followed by many that night and everyone was afraid to go to bed. I got out the car, put it in the open and we tried to sleep in that. The shocks continued but with decreasing frequency and severity. I suppose it takes time for old mother earth to settle down after such a spasm. When you see the scene of devastation you marvel that no more people were killed or hurt, and that there was no fire, for it happened at a time when all were preparing meals. The gas at Long Beach has only just been turned back. For nearly two weeks everyone had to cook either with electricity or over wood fires in the open yards. All the water had to be boiled, and nothing but little wood fires to do it with. Everybody was looking forward to the luxury of a hot bath when the gas came back. The army furnished tents and all the parks were crowded with people living in tents, while the Red Cross was feeding them. Many lost everything except the clothes they had on when they rushed out of their houses. They don't know what to do; no home, no money, no job. Even the bank moratorium was on at the time it happened. It is going to be a problem to rehabilitate these communities as the financial loss alone is staggering on top of these hard times."

Ned Huxley's son, William Pittman Huxley, was married on Wednesday, March 29 to Miss Alice Emogene Daniel, daughter of Mr. and Mrs. Robert Daniel, of Birmingham, Ala.

Charles A. Meserve, now located with the schools of Wilmington, Vt., contem-

1895 Continued

plates a change to Massachusetts. We will get his new address later. — Harry Whorf's son, Richard, will be the star guest this summer at the Provincetown Theater at Cape Cod. — Johnny Moore has a son, Richard, at Yale University, who has won a position on the staff of the *Yale Daily News*.

We learn from the Boston papers that ill health has forced Louis K. Rourke to seek retirement from his position as superintendent of schoolhouse construction for the City of Boston. Louis was the first public works commissioner, having been appointed January 7, 1911, by former Mayor Fitzgerald, after he had completed several years of service as an assistant engineer in the construction of the Panama Canal, with three years of municipal service and eight years in private engineering works. In 1922 Mayor Curley appointed him a transit commissioner and in 1926 former Mayor Nichols named him building commissioner, the post he occupied in 1930, when he was chosen superintendent of schoolhouse construction.

John E. Longren of Los Angeles is still optimistic concerning the building of his contemplated steel mills. — The *Daily Facts* of Redlands, Calif., records in their issue of March 29 last the passing of our Benjamin Hodge. We quote the following: "Ben Hodge, for over 23 years a resident of Redlands, died at the Community Hospital after a short illness. For many months Mr. Hodge had worked tirelessly in the Social Service Exchange. Day after day he heard stories of those in distress and worked to relieve those in need, and it is believed that this heavy burden was one of the causes of his being stricken. For many years he had been most active in Red Cross work. Mr. Hodge was an experienced orange grower. He was trained as a mining engineer, being a graduate of Yale University and the M. I. T., but preferred to remain in Redlands. He was born in St. Paul, Minn., and was 62 years of age. He leaves a widow, two daughters, and one son. — LUTHER K. YODER, *Secretary*, Chandler Machine Company, Ayer, Mass. JOHN H. GARDNER, *Assistant Secretary*, Graybar Electric Company, 420 Lexington Avenue, New York, N. Y.

1896

In accordance with the express urge of the editors, the notes this month are signaled by brevity, "tersity" and "concisety."

Lou Morse journeyed to Cambridge early in May looking for young men.

John Rockwell went fishing in Lake Sebago in May.

The M. L. Fullers are back from their South American and insular trip and are home in North Easton for a spell.

Fred Damon vacationed in Bermuda in April.

Admiral Bakenhus migrates between New York and Washington and sees more or less of Admiral Hamlet.

Robert S. Hardy died on May 2.

Frank G. McCann died May 17, after an illness of several weeks.

Walter Stearns got his golf started by his usual spring trip to Raleigh, N. C.

Bert Spahr is back at his farm in the Berkshires from his winter trip to Sarasota, Fla.

Billy Clifford took his wife abroad this last winter, with Spain and Morocco as their special objectives.

Billy McAlpine went to Europe in April to make official study of European waterways and methods of flood control.

Con Young wrote in a 14-page Florida fish story that is a corker.

Some of the foregoing items will be amplified in later issues when the editors deal out more space. — CHARLES E. LOCKE, *Secretary*, Room 8-109, M. I. T., Cambridge, Mass. JOHN A. ROCKWELL, *Assistant Secretary*, 24 Garden Street, Cambridge, Mass.

1897

George A. Moran, V, for a number of years chief chemist with the Pacific Print Works in Lawrence, Mass., has joined the sales technical service division of the Calco Chemical Company, Bound Brook, N. J. Mr. Moran will direct the technical service in the dyeing and printing of Calco fast colors. — JOHN A. COLLINS, JR., *Secretary*, 20 Quincy Street, Lawrence, Mass. CHARLES W. BRADLEE, *Acting Secretary*, 261 Franklin Street, Boston, Mass.

1900

A card from Mortimer Silverman announces that he has opened an office at 114 State Street, Boston, for consulting engineering in design construction and rehabilitation of textile and other industries with special reference to power fuel and labor conservation. For the past 22 years Mortimer has been associated with Homer Loring.

Word from Jim Batcheller at Corvallis, Ore., brings out the fact that after serving for six years as Secretary-Treasurer of the American Institute of Mining and Metallurgical Engineers, Oregon Section, he has been appointed Chairman. Jim thinks that he may make a trip East this summer. There are a lot of us who will be delighted to see him again. While on the subject of Jim, his unique Christmas card comes to mind. Last year he made a brick and cement seat at the front door of his house and while the cement was still semi-plastic he captured the imprint of the hands of the family, also the footprints of the dog and canary bird. Later a photograph of the result was developed into a very nice Christmas card. Leave it to Jim for something of this sort.

Just as this screed was being closed up, Ingersol came in with the following extract from a letter received from Jim: "Under separate cover by parcel post I am sending you a small box of tulips — a short sample of what I am growing here in my garden during my play hours. From experiments in mailing similarly in former years I judge they will arrive in what may appear to be hopelessly wilted condition. However, most, if not all, will freshen up if you will do as follows: with a sharp knife cut off diagonally about

one-half inch of the stems, then lay them all horizontally in several inches of water as *hot as you can stand* on your hands for over night, or if you can maintain the heat that otherwise might be lost by radiation, a few hours will probably do the trick. As they will be about 96 hours older on arrival than when they left here, I do not believe they can live (in good condition) but a few days more. However, the fresh cutting of the stems plus some hot water daily in their vases will prolong their freshness. Some people claim '10 grains of aspirin daily' will greatly prolong their usefulness! (Dissolve the aspirin in their water.) "Well, I am sorry I could not find a box long enough to send them with full lengths of stems, for most of them stand from 24 to 30 inches tall. A few varieties grow to 36 inches tall. This year all the blossoms here are smaller in the cup than usual, attributed to the 'bitter' cold (only 14° F), as the natives call it, of last winter. Usually we rarely get colder than 6° or 8° below freezing. Even if they are smaller and a little shorter, my yard is a blaze of color, for I have about 60 different varieties."

Charlie Leary reports through a street interview that everything is again rosy with him at his new address 44 School Street, Boston.

President Pelley of the New Haven Railroad announces the appointment of Vice-President Charles E. Smith in charge of operations of the New England Transportation Company and the County Transportation Company, highway subsidiaries of the New Haven Railroad. Charlie says that there is always room at the top. — C. BURTON COTTING, *Secretary*, 111 Devonshire Street, Boston, Mass.

1901

Still pursuing the active career of a barnstormer, I have met a number of classmates during the past month and have renewed some friendships which, while they have never lapsed, have been in abeyance for over 30 years.

So far as I can ascertain, there is only one member of the Class in Cincinnati, Robert Andrew, who was a Course II man. Whether Robert left town before my arrival, I was unable to ascertain as he was unknown to the police, but I picked up a couple of taxi drivers who thought they knew him. In passing, they were probably wrong and I suspect they refer to some other worthy citizen using Robert's name as an alias. Well, after I left Cincinnati, mourning the absent Robert, I pushed into Buffalo, N. Y. The latter is a touch of elegance as, so far as I know, there is only the one. While here I was the guest of our very good friend, Loring Danforth, and had a most enjoyable visit under his hospitable roof. I lunched with the Niagara Falls group, who by the way hold the proud record, unique in Technology annals, of turning out never less than 50% of their entire electorate at all local Technology club doings. For some reason which I do not know, 1901 has avoided the Falls, possibly because of the immediate contiguity of the Canadian shore and the ease with

1901 Continued

which one can get there coupled with the difficulty involved in a return. LeBosquet's attention should be called to this. I think he has missed a bet. Or perhaps he hasn't. That night I met the Buffalo Club at one of the best meetings that I have had during my year of peregrinations. It is a fine, live group, undoubtedly due in part at least to the influence of Danforth, Dick Dow, Sol Stone, Nat Patch, and by the grace of a kind and loving father, Frank Lane, whom I had not seen since graduation, a comment which also applies to Dick Dow. George Fisk was the only one I did not see and I understood that he was out of town. It was also my great good fortune while in Buffalo to meet the very charming — and courageous — lady who has undertaken the arduous task of becoming the better half of our good friend Nat Patch. Corporeally it is impossible, mentally it can be no more than a 50-50 break, a comment that applies equally to the exercise of geniality and good friendship. So I am a little at a loss to define the better. When I saw them last they were romping down the street hand in hand, Nat very happy, both deservedly and properly.

My next day found me in Rochester and I spent a most delightful afternoon with Al Sulzer, now the General Manager of Kodak Park, inspecting certain of the activities of his bailiwick. Charlie Flint is also one of what *Time* designates as the tycoons of this industry and him I glimpsed for a moment. The sight of me, however, was seemingly more than he could bear — I don't blame him — for after words of greeting and remembrance he left hurriedly, and as he dashed down the long corridor, I saw him wipe a furtive tear or two from his keen gray eye. It must have been this, for they have no dust at Kodak Park. Well anyhow it is a big and tremendously interesting show and Al, whom I have not seen for many many years, is even less changed by the lapse of time than I like to believe that I am. It's a sturdy stock, the Class of 1901.

After a brief convalescent period I started off again, this time in the company of Dr. Compton, and we played a joint date on the neutral territory of Waterbury, Conn., where the local group also entertained those from New Haven and Hartford. In the latter contingent was the faithful Roger Wight — why so large a man should have that particular patronymic will always be a mystery to me — and under the genial guidance of C. E. Smith '00 — near enough to '01 to be regarded as a family connection, particularly in the orphaned state of the surviving members of that group of friendly enemies — a most enjoyable time ensued. The '01 contingent from the home town, Ted Davis and Russell Putnam, were both on hand and I should say in very good form. Leaving Dr. Compton to the solicitous and I know entirely adequate care of deLancey '90, I pushed on to Washington that night and after a hectic day in the metropolis, landed in Harrisburg, Pa., to meet the local group. This is another town which apparently 1901 has placed on the index, for what reason I can not

say, as I liked both the town and the members of the local Club who extended to me a most gracious and charming hospitality. Farley Gannett of the Class of '02, that class by the way which shares with '00 (page C. E. Smith) two of the most favored positions in the long roster of Technology classes, was also present, and we agreed that the influence of 1901 had unquestionably been a very vital force in shaping the careers of the members of our junior and less favored class. I left Harrisburg with real regret and honestly believe that they would be willing to have me come back. Need I say more?

By the time this has passed the editorial eye and long before it reaches yours, you will have received a letter from me breaking to you the glad tidings which I have so carefully concealed during the past dreary months that all plans are made for the Thirty-Second Reunion. As we go to press, prospects for a successful gathering are distinctly bright. I shall do a little missionary work during the next few weeks as I resume my program of one-night stands in the near future. Speaking of which, although I suggested my willingness to take on a little Eva and a brace of bloodhounds, offers have reached me only of a pair of dachshunds — and I'm no second-story worker with or without the remaining moiety of an itinerant "Tom" company. Jack Scully at least will understand the allusion. And so, gentlemen, I go to prepare for your entertainment, which I hope you will enjoy in no limited percentile measure. The coming weeks will tell. — ALLAN WINTER ROWE, *Secretary*, 4 Newbury Street, Boston, Mass.

1902

With Red Proctor as President of the Alumni Association and Lou Cates as a Term Member of the Corporation, the Class of '02 was somewhat prominent on the recent alumni ballot. Cates has been nominated for the Corporation twice before, but as his work has been, up to the last three years, in the far West, he was almost certain to lose out in the balloting, not being widely known outside of his Class to alumni in other parts of the country and they had the most votes. Now that the Nominating Committee has a free hand to select only three nominees, who are certain to be elected, they showed their opinion of Lou by placing his name on the list that they reported. His classmates will be glad to have Lou, along with Red, on the Corporation. Red is one of the few alumni who have been elected to the Corporation twice. Adrian Sawyer will continue as a member of the Alumni Council as representative of the Technology Club of Chicago, as well as being one of the Executive Committee.

The architectural firm of Kilham, Hopkins and Greeley, all Tech men, with Roger the most active partner, have moved their offices from 9 Park Street, Boston, overlooking the Common, to 125 Newbury Street, where parking is easier. This firm has recently drawn plans for a recreation center, known as the Hovey Institute, to be erected in Waltham,

Mass. — The Sawyer Construction Company of 31 St. James Avenue, Boston (that's Adrian) have the contract for the completion of Kirkland House at Harvard College. This is the last step in President Lowell's famous House Plan. The first move in the Lowell program was the building of three freshmen dormitories nearly 20 years ago and Adrian, as superintendent for the George A. Fuller Company, had charge of the construction of these buildings. When Dr. Lowell obtained the funds to complete the last link in his great program, he at once placed the work in Adrian's charge, saying that it was fitting that he should complete the program as he had charge of the beginning of the work.

Miss Alpa Whitney, daughter of Phil Whitney — excuse us, Professor Philip R. Whitney of the Architectural Department of the University of Pennsylvania — is to be married this June, but Phil failed to tell us the name of the lucky man. Phil's son, Reed Whitney, is living in Wilmette, Ill. — John R. Morse is assistant to the President of the Apex Electrical Manufacturing Company of Cleveland. His special work is budgetary and sales control. This year Morse is Chairman of the Cleveland Chapter of the Society of Industrial Engineers; he is also Chairman of the Cleveland Marketing Society and the Cleveland Market Research Group, as well as a director of the Cleveland Chapter of the National Association of Cost Accountants. — FREDERICK H. HUNTER, *Secretary*, Box 11, West Roxbury, Mass. BURTON G. PHILBRICK, *Assistant Secretary*, 246 Stuart Street, Boston, Mass.

1904

I was requested by the Review Editor to make notes for this issue "as brief and pithy as possible." It requires no effort on my part to make them brief.

A memorandum received from Professor Locke gives a bit of information about one of our classmates: "W. B. Boggs and J. N. Anderson have been awarded the Leonard gold medal by the Engineering Institute of Canada for their paper on 'The Anode Department of the Noranda Smelter,' published in the *Canadian Mining and Metallurgical Bulletin* last April."

A day or two ago I received a post card from Harry Rollins mailed in Granada, Spain, with the following message: "Mrs. R. and I are enjoying a month's automobile trip through Spain and finding it most interesting. In the midst of so many things a thousand years old we have wonderful roads, good hotels, and dial telephones. An old Des Moines friend was in charge of the telephone installation through Spain."

The Class Reunion was held with the usual success on June 23, 24, and 25. The period elapsing between the Reunion and the date of publication of this issue is so short that I am unable to give any details as to what happened at the Reunion.

I sincerely hope that you will all have a very pleasant summer and enjoy it to the utmost. — HENRY W. STEVENS, *Secretary*, 12 Garrison Street, Chestnut Hill,

1904 Continued

Mass. AMASA M. HOLCOMB, Assistant Secretary, 3305 18th Street, N. W., Washington, D. C.

1905

When '05 thinks of beer it thinks of Burkhardt, XIII, who is now engaged in reviving the glories of the family name but under the new appellation of The Croft Brewing Company, Roxbury, of which he is Secretary and Treasurer. Early in April he was on the air from WBZ and the following Sunday was the subject of an interview in the Boston *Herald*.

Burk believes that 14 years of one-half of one per cent beverage has not diminished the national taste for beer. "The expected volume of beer and ale," he said, "is very great. And from every indication the demand will tax the available productive capacity not only to the limit but will far exceed the ability of those breweries now ready to go but also those susceptible of equipping."

Referring to a proposed '05 celebration, Andy Fisher, X, wrote that Burk "has a wonderful place out here. There is a fire-place as big as a barn door and a nice little kitchen where we can prepare the quahog chowder. Burk can supply the beer." No word of the celebration has come in.

Professor Frederick K. Morris, Geology, M. I. T., made the principal address at the Student Scientific Conference at Wesleyan in April. He was cordially received. The conference, attended by over 600 delegates from Amherst, Connecticut, Connecticut State, Dartmouth, Massachusetts State, Mt. Holyoke, Smith, Springfield, Trinity, and Wesleyan, was a serious affair with 177 lectures and demonstrations entirely by the students. To an old-timer, it was an interesting indication of the trend of modern schooling. We fail to recall any trek to Troy to trade technological topics with Cornell, Lawrence, Rensselaer, Sheffield, Stevens, and Worcester, and doubtless we were the losers.

Very, very seldom does a classmate call upon your Secretary in Middletown. So it was a special joy to answer the bell one Sunday afternoon in April and behold old Bob Lord, X. Bob was headed south with an automobile load of leather samples, for not only does he tan the leather, but goes out as the star salesman. His keen eye detected his own leather in the Bass moccasins we wore. From other sources it is learned that the Lord Brothers Company is doing very well.

Bill Crowell, IV, of Portland is President of the Oregon Chapter, American Institute of Architects. He writes: "We have signed a contract with the city to take 'Scrip' for an alteration job. We hope this will ease the situation locally but don't expect to use it for class dues." — Did everyone notice Charlie Field, V, and Ed Washburn, V, in the photograph of the students and staff of the Research Laboratory of Physical Chemistry 1905-1906 in the April Review?

Grafton Perkins, V, denies that C. E. Buck, literary counselor for Lever Brothers Company, has anything to do with their advertising. — From Bill Motter,

III, we learn that Ted Steel, VI, is with Potomac Electric Power Company and can be reached at 3517 S. Street, N. W., Washington, D. C. — Logan Hill, II, also has moved to Washington; address: 2133 R Street, N. W. — Tom Estabrook, V, sent us one of the Brown Company's automobile kits by which paper towels are expected to replace the usual waste, which was nice of Tom.

Thanks to Ray Bell, II, we saw a copy of the invitation to a dinner in honor of Norman Lombard, II, former executive Vice-President of the Stable Money Association. The dinner, sponsored by a committee of economists and friends, including John Dewey and Amos Pinchot, was held at the Yale Club on March 30. Norman addressed the meeting on "Our Monetary Policy — Past, Present — and Future?" The Stable Money Association, with which he has been associated for six or seven years, seems to have ended. Norman's present address is 465 Central Park West, New York. Bill Motter hears that he is connected with the Rose Livingston Prudential Committee.

At our 25th at Oyster Harbors, George Jones, II, proposed a class meeting at the Chicago Fair. A letter just received from George says: "The local Chicago 1905 men urge members of the class who contemplate attending the Fair to plan their trip so as to be here the week beginning July 30, and preferably Saturday, July 29."

In addition, there will be a general M. I. T. meeting Thursday, June 29, at which Dr. Compton is expected to be present. Those who do not find the July 30 date convenient may have their choice of June 29 and also the week of Labor Day which begins Sunday, September 3.

"A special effort will be made to welcome 1905 men during any of these three weeks, the July 29-30 date being, however, more in the nature of a special 1905 reunion. Frank Payne, XIII, Adolph Ortseifen, XIII, and I have discussed this informally and will get hold of the other local 1905 men and work up something for this midsummer reunion." Those planning to follow the suggestion should communicate with George B. Jones, Marquette Building, Chicago.

With accomplishments in badminton and figure skating, one would think that Dick Dickerman, XIII, had done well at his age. On the paper of the Camera Club of the Providence Engineering Society he tells us of another activity. "I joined the Ship Model Society soon after it started, partly because I had visions of rebuilding an old New Bedford model and partly because of my general inborn love for things nautical. I've not rebuilt the old boat, but get something of a kick out of *The Mariner* and have met some splendid fellows at our few meetings."

"The Society encourages research particularly along historical lines, so that it can publish the results, such as ships lines, rigging, hull construction, and so on, of early wooden ships, of our navy, as well as other types of vessels. In the few years that the Society has been organized, it has developed a membership of somewhere around 3000."

"We are desirous of getting in more members who are interested, as the dues all go into the publication. Each member alike shares in the advantages. A similar society in New York has affiliated with us to get the advantages of *The Mariner*. This is the Society that President Roosevelt is interested in."

"We are planning an exhibition of models next fall, and it will undoubtedly have a lot of fine boats. We hope also to show details of construction: jigs, gadgets, and what have you, aids to accomplish some of the trying details in rigging." A copy of *The Mariner* came to your Secretary with an invitation to join but our patience, surely, is insufficient for such work, fascinating though it must be.

Through the courtesy of the Secretary of the Class of 1918, Alexander Magoun, we learn that of the Tech men whose names appear in "Who's Who in Engineering", '05 takes first place with 45 names. (Applause.) Professor Magoun also furnished the information that the following names appear in "Who's Who in America": Barnes, Chesterman, Clapp (C. H.), Cronkhite, Daniels, Hool, Luce, Merrill (O. C.), Rhodes, and Washburn. (Great Applause.)

From Fred Poole, VI: "I am back with Bigelow, Kent, Willard and Company, of Boston, in the consulting field, and am now merchandising the product of a large New England textile printing company. I spent the summer in Canada and the winter in Florida." His address is Apartment 7-D, 128 East 28th Street, New York.

Ray Bell, II, President of Raymond E. Bell, Inc., is quoted in the New York *American*: "I have been expecting the 'Buy American' plan for ten years. I have been unable to understand why it has taken so long for the people of the United States to realize that regardless of their personal opinions concerning the desirability of international coöperation, economic forces determine our choice to make our own economic progress in our own way, with our own methods, our own labor, and our own machines."

"Any other course is merely a gentle way of courting danger and disaster. Economic planning in this country is not possible without economic nationalism. And I believe that economic nationalism is the corrective cure for present conditions. The consistent application of 'Buy American' principles should be rapidly reflected in improved conditions in trade in many industries in which American capital and labor is now sorely distressed."

Ros Davis, XIII, writes: "I attended the 50th birthday party of Rosie, the Siamese white elephant, at the New York Hippodrome on the staff of the Siamese Consul General. Golden birthday parties of sacred white elephants must be given proper sanction. At a round table with a huge birthday cake with candles, Rosie, nails gilded, entertained a group of chorus girls from the state show, while the flash lights popped. It was a gay celebration. — But up on the stage, how different. The huge space was dark and deserted;

1905 Continued

the picture was on. Only a couple of stage hands could be seen. My thoughts flashed back to the glories of other days when dozens of horses and elephants and hundreds of men and women were doing the Yankee Circus on Mars. I stood over the tank where Neptune's Daughter emerged from the waves, but daughter had gone and the waves were no more.

"For some years a trip to New York was incomplete without a visit to the Hippodrome, but something happened, perhaps the movies, and the big shows passed out. With all their advantages, the films cannot do some things and many of us recall with youthful pleasure the old Thompson and Dundy spectacles. I seem to remember my father saying something like that about the Battle of Gettysburg at The Cyclorama on Columbus Avenue. 'You are growing old', someone suggests. Oh well."

The obituary of Tech Show, printed in The Review about a year ago, seems to have been exaggerated, as your Secretary has received a message under the letterhead of Tech Show 1933. It's all a mystery, but "On with the Show!" — Mr. and Mrs. Ed Perry, XIII, drove over from Waterbury one day and called on your Secretary. The real reason was that Ed had to get his brother, a Harvard philosopher, who had lectured at Wesleyan. — Bill Tufts', I, daughter is a student at the National Cathedral School, Washington.

Frank Payne, XIII, has moved his Crane Packing Company to 1801 Belle Plaine Avenue, Chicago. — A student stopped your Secretary with a message of greeting from Percy Hill, II, who holds no ill will against us on account of our error in the class notes of three years ago concerning his rating in the Western Union. He has a son at Tech. — Andy Fisher, X, got Doc Lewis, X, out to the John Elliott Chapter, Unitarian Laymen's League meeting in March. And what do you think Doc spoke about? Technocracy.

And so this completes ten years of class notes, eight times every year, over 110,000 words in all. During this time, letters have been received from 216 different members of the class, some of whom have written more than once, naturally. To all these, we extend our thanks. They made the notes. Considering that about 175 members ordinarily read The Review (about 125 just now), 216 appears to be a good proportion. But with 450 on the class list, less than half have been heard from.

The preparation of these notes has been an enjoyable experience for your Secretary. Innumerable contacts could have been secured in no other way. With the complete coöperation of you readers and with the help of some of the 234 missing men, we may hope for bigger and better class notes next year. — ROSWELL DAVIS, Secretary, Wesleyan Station, Middletown, Conn.

1906

The following letter was received from Jack Norton just too late to include in the May Review: "Undoubtedly you are

more likely to receive letters from members of the class when they change their positions than at any other time. This is, of course, unfortunate for your news items. I am leaving the City of Detroit on March 1 to become bacteriologist for The Upjohn Company at Kalamazoo, Mich. While this change is rather sudden, at the same time the financial condition of the City of Detroit does not warrant taking chances as to the future. Other news about members of the class is very scarce as I have neither seen nor heard from any of them for many months. With best regards to yourself and also to Ned Rowe when you happen to see him."

Also, this from Ralph Patch under the date of April 3: "I have just read the class notes in The Technology Review for April. This reminds me that I have not yet explained my absence from the dinner which was held February 4. The doctor ordered me to go to Florida in February, so we followed our usual custom of spending the month of February there. We have always been down on the train before, but this time we drove down. Partly for this reason we did not drive as much while we were there. This gave me more time to play golf and I had a lot of fun at it." The Secretary had the pleasure of seeing Ralph and Mrs. Patch for a few moments on the evening of April 11 and Ralph gave every appearance of having profited from his doctor's prescription.

The Boston Herald of Sunday, March 26, devoted a column and a half to the proposed reorganization of the Cambridge, Mass., City Government initiated by Mayor Russell. T. L. Hinckley, of our class and formerly professor at Technology, was retained by Mayor Russell to develop the plan of reorganization. The Secretary is of the opinion that the plan has not yet been adopted by the city. The economies which the plan called for have met opposition from the politicians.

The Secretary has received word of the death of James R. McClintock. The following brief obituary was taken from the Engineering News-Record of April 20, 1933: "James R. McClintock, a member of the firm of Fuller and McClintock, consulting engineers, New York, died at his home there on April 11 following an illness of several weeks. Mr. McClintock was born in Malden, Mass., in 1883 and was educated at the University of Rochester and the M. I. T., from which he was graduated. His entire professional career was spent with the firm of Hering and Fuller, the firms of George W. Fuller, and since 1916, Fuller and McClintock. In his earlier practice, Mr. McClintock was resident engineer on several pumping stations and filtration plants. Subsequently, he had devoted his attention to the design of water supply, water purification, and sewage disposal systems. Most recently he was in charge of the design of the Ward's Island sewage treatment plant at New York. Prior to that he was in charge of the Toledo office of the firm and most of the time from 1921 to 1925 was spent in Kansas City in charge of the design of the new water supply work there."

And, last but not least, this from Cupid Nash: "Dear Kidd, Kidder, Kiddest, I have forgotten whether I notified you of my change in address from 116 Westford Avenue, Springfield, to 556 Ward Street, Newton Centre, Telephone — Centre Newton 3906; stationed at the Navy Yard, Inspector Naval Material Office, Charlestown 1400, Line 520, Building 24. There, that's that and if you happen to be in this district of an evening or Sunday, drop in. I left Elmer E. Harrington, the only '06 man in Springfield, in good health and full of depression." — JAMES W. KIDDER, Secretary, Room 1001, 50 Oliver Street, Boston, Mass. EDWARD B. ROWE, Assistant Secretary, 11 Cushing Road, Wellesley Hills, Mass.

1907

Early in April we received from the Alumni Office notice of the death of Raleigh D. Morrill which occurred on March 11. A letter to New York University asking for information resulted in a note to the Secretary from Miss Ruby B. Wilber, Morrill's fiancée, to whom we have written a note of sympathy in behalf of the Class. "Who's Who in Engineering" also furnished us with information, but the following article from the New York Times of March 12 gives quite a complete summary of our classmate's career: "Professor Raleigh D. Morrill, Associate Professor of Experimental Engineering in New York University since 1926, died of a cerebral tumor early this morning in Belltown at the home of his uncle, F. C. Avery, former principal of the local high school, with whom he resided. His mother, Mrs. Clara A. Morrill of Strafford, Vt., also survives.

"Professor Morrill, who was born at Strafford in 1885, received the degrees of B.S. and E.E. at the University of Maine and M. I. T. He later received those of M.S. and M.E. at the University of Minnesota. He was a member of the American Society of Mechanical Engineers, the American Society of Refrigerating Engineers, and the committee for standardizing refrigerator performance tests.

"He had been professor of electrical engineering at Norwich University, plant engineer at the Presby-Leland Company in New York, and professor of mechanical engineering at the University of Minnesota. He also had done research work on refrigerators for the Popular Science Institute.

"He and Miss Ruby B. Wilber, biology teacher at Stamford High School, became engaged recently. They were to have been married at the close of the school.

"Professor Morrill specialized in research in thermodynamics as well as refrigeration, his achievements in both fields winning widespread recognition from fellow scientists. He was in charge of the classes in thermodynamics at New York University's College of Engineering. Before becoming a member of the university's faculty, he had served as consultant to leading refrigeration companies."

H. J. C. MacDonald is now manager of mines and mills for the Glavsvet-

1907 Continued

metzoloto, the organization that directs the non-ferrous metal industry of the U. S. S. R.

Through the kindness of Professor Locke at the Institute, we are able to publish the following interesting letter from Lawrence C. Hampton: "Once more I appear to be traveling on my way in strange places. My wife and I were sent down to Panama to make a few changes in the facilities of my company, The Union Oil Company of California. As usual on my journeys into foreign lands on business, I take off some time to see the interesting sights and study the habits of the people. You were kind enough to say in one of your last letters to me that others were interested in what I wrote, so you are at liberty to forward this letter to my Class Secretary if you desire.

"You doubtless have been to Panama and know that it is located on the Pacific side of the Isthmus and is nearer to London than is Colon, which is on the Atlantic ocean side. The directions here are all topsy-turvy. We have seen the sun rise out of the Pacific ocean from Panama City and have seen it set in the Atlantic from Colon. There are other queer things here and my friends laugh when I write about the ants that carry umbrellas. But fortunately I had my movie camera along and took a few feet of film of a stream of ants about four inches wide traveling along the old trail Henry Morgan traveled several hundred years ago at the old city of Panama. Each ant had a piece of a leaf about a half an inch by an inch-and-a-half which he carried over his head. These little pieces of green and yellow leaves look for all the world like umbrellas and as the ants hurry on their way and the wind blows them in one direction and another, it is a sight that can be watched for hours. Fortunately, these ants are not bothered by one observing them at work and one can stand within a few inches of their trail and they go about their ways as if they were unobserved.

"Before arriving at Panama City, I had heard of the San Blas Indians. There was always a sort of mystery about these people and I wanted to know something about them first hand. Their islands are located about 100 miles from Panama City on the Atlantic side and extend for 150 miles southward toward Colombia. It was suggested one day that we fly over to one of the friendly islands. As this would only require a few hours, we planned a week-end trip. My wife and two friends and their wives went along. Such a trip by boat would require the better part of two weeks and the seas are very rough. The San Blas are a very stocky, sturdy type of people. The men are short and the upper part of their bodies very well developed. The women are very short also. The girls attain their height at 12 to 14 years of age. This makes it rather difficult to tell the girls from the women, except for the fact that the married women have their hair cut. I should have stated that the San Blas have preserved their race pure and unde-

fled down through the ages and even today a white man cannot stay on their island over night.

"The San Blas are a very clean people. They wash their clothes daily. Their homes are clean and free from vermin. The houses are made of palm leaves from the coconut. They sleep in hammocks which they weave. The wedding ceremony is rather interesting. When the girl reaches a marriageable age, she is given over to the older women. They take her to a palm-enclosed yard where for several days they pour salt water over her little, naked body. After this ceremony, her hair is cut. At the end of a year she is married. During the hair-cutting ceremony the men of the tribe have a glorious drunken spree called a 'chicha,' which lasts as long as the father can furnish the drink or 'chicha.' At the end of the year period, the parents of the girl pick out a likely young man and ask his parents if they are agreeable to a union of the son and daughter. If agreeable, the young man is invited to come and sleep in the hammock with the young girl. He then makes his home with her parents and often there are many families all living together in perfect harmony under the one roof.

"We made friends with one of these families in a very unusual way. We had brought with us some trinkets which we had intended to barter for bows and arrows, hammocks, and so on, and my wife, becoming interested in a little girl of six, couldn't resist giving her a little brass-bound mirror. Her grandfather, who had traveled to New York as a sailor and could speak a little English, saw this little happening and invited us into his home. There he told us all about the different members of his home and showed us his kitchen where they cooked the fish and the flesh of the tapir, which they catch on the mainland nearby, over a charcoal fire which is kept burning in a brazier. Many of the mahogany platters which they used, as well as the tools, were several hundred years old, having been handed down from one family to another. It was very interesting to see them weaving their hammocks. The bright-colored dresses the women wore were made by hand of bits of colored cotton cloth sewed on a background of red cotton cloth made up into very intricate designs.

"One of the queerest things to us was to see the women wearing gold rings in their noses. Even the youngest girls had solid gold rings about an inch in diameter and rather heavy fastened to their noses. — Another thing that intrigued us was the white San Blas Indian. Anthropologists are having a great time trying to decide why they are white. We decided in our own minds that they were albinos and let it go at that. Their hair was like straw in color. Their flesh was so white it was pink and covered with splotches of darker color resembling freckles. Their eyes were so weak they could not open them in the sunlight.

"We certainly enjoyed our stay with these people for the day. They seemed to

be glad to have us call and were extremely kind to us. Their bows and arrows were rather formidable and we succeeded in obtaining several. They also use the steel machete. There is no water on the islands and it is necessary to go to the mainland. This constant travel in the canoes makes them short legged. Also their islands are small and they do no walking. — My wife and I expect to stay in Panama until the first week in May, when we expect to return to Los Angeles."

Andrew N. Rebori is now at 221 North La Salle Street, Chicago, and Lucius F. Hallett at 6060 Stony Island Avenue, Chicago. — The Secretary has left the life insurance business with which he has been connected for the past 16 years, and is now associated as a salesman with Electrolux, Inc., manufacturers and distributors of complete and highly efficient cleaning equipment for floors, rugs, furniture, mattresses, and so on. — BRYANT NICHOLS, *Secretary*, 12 Newland Street, Auburndale, Mass. HAROLD S. WONSON, *Assistant Secretary*, Commonwealth Shoe and Leather Company, Whitman, Mass.

1909

As another year rolls around, we are reminded that, at this time next year, we shall be very much interested in the fact that we are celebrating the Twenty-Fifth Anniversary of our graduation from M. I. T. In the meantime, I should be glad to receive suggestions as to where we might go, or what we might do. I take it for granted that we shall probably desire to have a week-end party at some easily accessible place. Perhaps somebody has a better idea; if so, let's have it.

The sympathy of the Class goes out to Chet Pope in the loss of his wife, who died in Florida last March. She had gone to Clearwater with Chet and their daughter, Polly, now 11 years old, for a vacation. While there she contracted some kind of an infection, which proved fatal. — I have just learned of the death last December of A. S. Wiester, who was associated with the Class as a special student in our fourth year only.

Paul Wiswall writes of his having lunch with Reg Jones the other day and of seeing Max Weill, whose daughter, Ruth, having graduated from Bradford Academy in Haverhill, is teaching in a kindergarten in Greenwich Village. — CHARLES R. MAIN, *Secretary*, 201 Devonshire Street, Boston, Mass. PAUL M. WISWALL, *Assistant Secretary*, General Foods Corporation, 250 Park Avenue, New York, N. Y. MAURICE R. SCHARFF, *Assistant Secretary*, 1 Wall Street, New York, N. Y.

1910

We have quite a grist of correspondence with which to wind up the year. Hal Manson writes; "I am fine, thank you, and with the depression behind us (I hope) and beer added to the grocery business, happy days are here again. Rog Hill was here last week and spent the evening with us. Regards to all the old bunch."

1910 Continued

The following comes from Austin Mason: "Am still in the textile business as Treasurer of the Massachusetts Mohair Plush Company (80 Federal Street, Boston). Have been with this concern since the War, and hope to remain until the next war."

Fred Lufkin is a bit more expansive and kicks in with a good long letter: "Glad to receive one of your group of letters because it reminds me that I really did attend 'dear old M. I. T.' once upon a time. As I realize that it is up to all '10 men to help you to produce those notes that we enjoy reading in The Review, I'll jot down the few points of interest that occur to me.

"Mrs. Lufkin and I are well and are still located in Elgin, where we have spent the greater portion of the last 16 years. Elgin is a thriving community, situated in the beautiful Fox River Valley and within easy commuting distance of Chicago.

"Like everyone else living in or near Chicago, we are looking forward to the great 'Century of Progress' Exposition, which opens its gates to the world in a very few days. From our preliminary surveys and our minor connections with the preparations for this event, we anticipate a truly marvelous World's Fair and we urge all '10 men to visit Chicago this summer even if they have to 'hitch-hike' all the way across the country.

"As you doubtless know, M. I. T. will have an exhibit to show the scientific progress during the last century as seen through the eyes of a scientific institution. Many Technology men will have had a large part, not only in planning the various features, but in the development of the progress upon which the Exposition is based.

"We hope that we shall have the good fortune to see at least a few of the '10 men who come to Chicago this summer. The Technology Club of Chicago, of which Lloyd C. Cooley '11 is now President, holds luncheons each Wednesday at 12:30 p.m. on the top floor of the Medical and Dental Arts Building, corner of Wabash and Lake Street in Chicago's 'loop' area. We'll be looking for you."

George McRae writes: "You certainly make it easy to contribute to the class notes. Laziness ceases to be an excuse, leaving only modesty, real or imagined. — I am continuing, as for the last five years, to direct the operations of the Telephone Company in New Jersey, although, like everyone else, I sometimes suspect that our control over events was not quite so potent as we imagined two or three years ago.

"I do not see many 1910 men other than Gordon Holbrook and Fred Arnolt, who are neighbors, and Carrol Shaw and E. M. Potter in New York. Some of the others I follow with pride in the papers — particularly my old laboratory mate, Francis Silsbee, who has acquired a doctor's dignity, a fine family, and first-class standing as a scientist. Tom Killion, my oldest friend, calls himself 1911, but we were together in '10 for most of one year."

And here is a communication from John Malone: "May, 1933. From Naval architecture to insurance is my story. My brother and I represent the Massachusetts Bond and Insurance Company, home office in Boston. I have charge of the surety bond department, in close contact with contractors. We have weathered the storm so far and with our real leader in the White House will come out of it. Yes, I am a Democrat, but under the skin 'are't we all?' We have a M. I. T. Club in Buffalo but have missed the last few of their darn good meetings! Regards to all I know." — DUDLEY CLAPP, *Secretary*, 40 Water Street, East Cambridge, Mass.

1911

May has just a week left as these notes are being typed, apple blossoms are just breaking prettily in our orchard, requiring spraying once before and several times after they blow away, and Dennie becomes a farmer for the nonce. The golf course greens require patching, fairways reseeding in spots, flower and vegetable gardens planted (under wife's capable supervision), and yet the summer hotel business won't really begin until after these notes appear. Particularly this year one must get nearer to Nature oneself, what with banks in Maine still closed and the like. However, hope springs eternal and we are hoping general business improvement will mean our share of the resort business for this section and we hope you and you and you will spend some time with us.

And while we're on the subject, read this from the May 13 issue of the Portland (Maine) *Press-Herald* of May 12: "Either the depression has hit the squirrels just as hard as it has the rest of us, or those little animals are simply beautiful, but dumb.

"When Orville B. Denison, Jr., and Earle L. Day were working in the ice house at Douglas Hill Inn today, they discovered 34 golf balls carefully tucked away in the sawdust by squirrels and bearing their teeth marks. Apparently they found them hard nuts to crack when it came to drawing on their winter's supply of provisions, although nutshells nearby showed they had some luck."

Junior (15), by the way, plays second base on the Sebago Town Team and is fast becoming as rabid a fanatic on the good old national game as is his old man.

Stu Copeland, II, testifying some weeks ago before the House Ways and Means Committee in Washington, said the American paper and pulp industry was threatened by a "widespread wave of bankruptcy" unless foreign competition could be met. No sign of any adjustment in foreign production costs has appeared, he said, and American paper mills are forced to run at a loss. Further, he said, the pulpwood trade is gravitating to countries with the currency most depreciated. Copeland represented the Eastern Manufacturing Company, Bangor, Maine, of which he is a Vice-President.

It is a pleasure to conclude this Maine section by reporting that George Estes,

II, and his family were not within the range of the horrible Auburn, Maine, fire in early May.

We're proud to note Lloyd Cooley, X, is now President of the Technology Club of Chicago, and from the Windy City we learn that Stanley Bates, I, is now at 260 West 66th Street.

Try this on your vocal chords: Rear Admiral Kaneko Goto, II, is now at 330, 4 Chome, Higashichofer Omoriku, Tokio, Japan.

Ike Huasman, I, President of Hausman Steel Company, Toledo and New York, now has his Metropolitan address at 22 East 40th Street, while his course-mate, Carl Richmond, I, has moved "just around the corner to 21 Dale Avenue, Quincy, Mass., where he and the missus and young Dick announce: "The latch string is out, the door locked, but any 1911 man requesting will be told where we keep the key."

So concludes another volume of 1911 class notes, like all of its 21 predecessors, a particular pleasure for your Secretary to chronicle nine times each year. But somehow this year, perhaps a sign of the times, there haven't been as many letters from classmates as I would like. Please, therefore, resolve immediately to endeavor to write me a letter sometime in the fortnight after Labor Day. That's when most of us are sending the kids back to school, but this year let's unite in a September campaign to "Write to Dennie"! God bless you all, my friends and classmates! — ORVILLE B. DENISON, *Secretary*, Douglas Hill Inn, Douglas Hill, Maine. JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford, Mass.

1912

As announced in the May issue, Harold Manning, X, was married on April 12. Walter P. Green, I, was thoughtful enough to send us a copy of the Waterbury (Conn.) *American*, which said in part: "... The wedding of Miss Helen Myra Allen, daughter of George Owen Allen of Woodlawn Terrace, to Harold Grosvenor Manning of Demarest Street, son of Mrs. Theodore Manning, of New Britain, took place today at noon at the chapel of the Second Congregational Church. Rev. Moses R. Lovell performed the ceremony in the presence of a large gathering of friends and relatives of the couple." To which Walter Green added the information that Manning and his bride were going to Washington, D. C., but would be back home in Waterbury by May 1.

Concerning himself, Green remarks that "everything has been very quiet" since he saw us last June at Plymouth. Walter, Jr., his older boy is doing well as a sophomore at the Institute, for which Walter Senior, offers the pious reflection, "I am very thankful." He reports that he is still with the American Brass Company.

From the New York *Times* of May 13, we learn that new honors have come to Commander Jerome C. Hunsaker, XIII-A, Vice-President of the Goodyear Zeppelin Corporation. Announcement has just been made that Commander Hunsaker will

1912 Continued

receive the 1933 award of the Daniel Guggenheim Medal for "notable achievements in the advancement of aeronautics."

We have enjoyed recent visits from N. A. Hall, VI; David Dasso, II; Charlie Carpenter, II; and W. A. Rhodes, VI.

N. A. Hall is now acting as sales manager of Electro Lift, Inc., of 30 Church Street, New York, a young organization in which Hall himself is financially interested. They manufacture and sell a new type electric hoist for use in factories and other plants. They also act as New York representative for the Bucyrus Erie Loadmaster. While business is naturally pretty slow at present, due to general conditions, Hall is very optimistic about the future of his enterprise. After many years' experience selling electric hoists to the trade, he is well equipped to make a success with his own company in this field. We speak for the Class when we wish Hall all possible success in this venture.

David Dasso has recently returned from an interesting and successful business trip to his company's headquarters in Switzerland. As previously reported, he is American representative for Sulzer Bros., Ltd. Dasso went over on the S. S. *Rex*, famous new giant liner of the Italian Line, and returned on the *Europa*. — Charlie Carpenter is holding his own against the depression, in the printing business in New York, and anybody who can do that deserves a lot of credit.

W. A. Rhodes has been delving into the mysteries of higher economics as a side line to his regular job with the A. T. & T. Company. He has found it so interesting that he has written a booklet entitled "Market Development," and if the editor of *The Review* will let a little free advertising slip into these columns, we'll tell you that Rhodes will be glad to mail you a copy for the very nominal sum of 35¢. His address is 55 Central Park West, New York City, N. Y.

We have had two extremely interesting letters, each much too long for inclusion in these notes, especially as the editors have asked us to limit our space in this July issue. One was from Ned Mason, VI, covering his extensive trip around the world in the interests of his company, Socony-Vacuum. Some of these details, however, we gave you in a previous issue, as related to us by Mrs. Mason, from some of Ned's letters to her. Altogether he was away nearly a year, and covered so many interesting and out-of-the-way places that we shall keep his letter, and perhaps give you excerpts of it from time to time, when we have more space to spare.

The other letter was from Robert J. Wiseman, VI. He forwarded to us a copy of a paper he recently presented to the Passaic County Chapter of the New Jersey Society of Professional Engineers, of which he has just been elected a Trustee-at-Large. His paper covered in a most interesting and informative manner, a wide variety of engineering and construction jobs which he saw on his last trip to the Pacific Coast, as well as many other "human interest" observations.

A. R. Hammond '12, who after long experience in mining in the United States, Mexico, and South America, finally entered the employ of the Liberty Mutual Insurance Company, as inspector on underground waterworks tunnels in New England, has recently been sent by his company to Los Angeles on the job of inspecting similar work in that part of the country.

In a recent issue of *Chemical and Metallurgical Engineering* the leading editorial quoted and commented on in complimentary terms a letter sent by Professor Schell, II, to his former students. The quotation referred to in this letter seems well worth repeating here. "... That great vulcan we call hard times is today forging the bands of character, bringing to keen temper the resilient spirit of men. Life is coming out of its glass case. It is becoming a gallant adventure for us all. As we advance through adversity, we shall find joy in difficulty; we shall give first and best energies to our greatest problems; we shall appraise rather than avoid opposition; we shall build new strength from vicissitude. What a day to be alive — when the world is making men."

Nimr S. Saleeby, A.B., B.Sc., Life Member of the Permanent International Association of Road Congresses, joins the benedicts. Bob has for years been a prominent bachelor and club man in Manila. He was a member of Rotary International, Army and Navy Club, Manila Polo Club, University Club, Casino Español, Caloocan Golf Club, Wack Wack Golf and Country Club, and Baguio Golf and Country Club. He was married last April in Paris and after a year's vacation in Europe and the States has returned to Manila. We extend to Bob and Mrs. Saleeby our sincerest wishes and hope to see them at our reunions in the near future. — FREDERICK J. SHEPARD, JR., Secretary, 125 Walnut Street, Watertown, Mass. DAVID J. McGRATH, Assistant Secretary, McGraw-Hill Publishing Company, Inc., 330 West 42nd Street, New York, N. Y.

1913

As a result of the circular announcement of the proposed Twentieth Reunion, letters have been received from many classmates who are making their *début* as news correspondents. On the other hand, the local contingent has scarcely responded at all. An informal dinner for a local group is to be the vehicle for our observance of the reunion. Perhaps in five years general conditions will permit a real celebration.

Harold Crocker comes to life with a brief note written upon official looking stationery. He is the city engineer at Brockton. — Dave Stern still runs the National Can Company and begins to feel old, having a girl in Wheaton and a boy in junior high headed for the Institute.

Phil Capen is helping the Massachusetts Legislature rush through its new tax bills. In just what capacity Phil serves, we have failed to learn. — Larry Hart sends a brief note from Johns-Man-

ville in New York, deploring the general business situation. — The McGraw-Hill Publishing Company is advertising a new book, "The Technical Man Sells His Services" by Ed Hurst. A new author in our ranks.

From Bangor, Larry Hoyt writes that he is now senior engineer with the Maine State Highway Department. — Ben Munch comes to life with a brief note from Connecticut. He is President of the Atwater Manufacturing Company at Plantsville. — Achard writes a chatty letter from New York. He is in charge of the Educational Bureau for the New York Edison and the Consolidated Gas Company. In his spare time he is working for a Ph.B. in education at New York University.

Butsey Bryant passed through the Institute the other day. Had a brief chat with him. Still engineering in Brookline, when there is any to be done. — Bill Brewster came up from Plymouth the other day for business and pleasure. Discussed with us the plans for a subdued reunion and then hurriedly left for business conference over town.

Complete returns on the celebration will be disclosed in the fall issue of *The Review*. — A pleasant and more prosperous summer to you all. — GEORGE P. CAPEN, Secretary, 50 Beaumont Street, Canton, Mass. ARTHUR L. TOWNSEND, Assistant Secretary, Room 3-435, M. I. T., Cambridge, Mass.

1914

How to end the depression (in class notes)! Whenever the Alumni Office learns of an address change it promptly notifies the Class Secretary. The Secretary of 1914 makes it a rule to send a letter to the person involved, thereby hoping to get some red-hot class news. Sad to relate, only about one letter in three is ever answered. Just a hasty note on the bottom of these letters promptly returned to your Secretary would be greatly appreciated.

Frank Jerome seems to shuttle between Painesville, Ohio, and Chicago. Perhaps his New York Central Railroad activities account for these frequent changes. — Yuan T. Ying is now with the National Research Institute at Shanghai.

From the Alumni Office it is learned that Jack Giffels is living in New Rochelle. Whether this is a business change or just a new voting address remains still unknown. Details are likewise obscure as to the reason for Malcolm Sayward changing his address from Quincy, Mass., to Groton, Conn.

Johnny Leathers was in Cambridge recently on a hasty visit from Rye, N. Y. He called on Dean Fales and your Secretary. Johnny is navigating one of the finest museum pieces of road machinery appearing on the highway today. Dean Fales reports that only the most artistic of scientific minds could truly appreciate the real joy that comes from the operation of this road transport.

Your Secretary has been negligent in not accepting the invitation of Class President Dorrance to visit him and pre-

1914 Continued

pare reunion plans. With our Twenty-Year Reunion just a year away and with economic conditions placing very definite limitations on the type of reunion to be held, the most careful planning will be required for this important event. It will greatly help the committee if every member of the class would write your President or Secretary at once giving his idea of what sort of a reunion is desired and where it should be held. Please!

Statistics are seldom difficult to collect, but their interpretation calls for a wise man. Professor Magoun has collected from "Who's Who in America" and "Who's Who in Engineering" the names of Technology men so listed. He has kindly furnished your Secretary the names of '14 men so included. As would be expected, because of its more general limitation to men of accomplishment in the field of the liberal arts, "Who's Who in America" contains only a short list of names, but it is interesting to note that 1914 has a very generous listing in comparison with other classes of our general period. "Who's Who in Engineering" seems to be a little more difficult to appraise. There are very obviously many of our classmates who should be included whose names do not appear. Those listed are Adams, Affel, Aldrich, Anderson, Atwood, Barratt, Bowman, Derry, Grant, Hall (H. H.), Hettinger, Hines, Horton, Lovett, Maier, Richmond, Ricker, Stanyan, Townend, Trufant, Wilkins (H. S.). What about Crocker, Douglas, Fales, Wente, and countless others?

And speaking about Wente, did you see his picture on the front cover of May *Electronics*? Wente has developed another loud speaker which is a marked advance in that rapidly advancing art. It is designed to effect stereoscopic hearing. Very successful tests were recently conducted in which Dr. Stokowski's famous orchestra playing in Philadelphia was heard in almost realism at Constitution Hall in Washington.

But now let us get back to "Who's Who in America." Of course, President Dorrance makes it, in spite of the fact that he fails to list the fact that he is President of 1914. Perhaps the fact that, in addition to being President of The Campbell Soup Company and of the Franco-American Soup Company, he finds time to be a director of the Federal Reserve Bank of Philadelphia, Girard Trust Company, Lehigh Valley Railroad, West Jersey and Seashore Railroad, Baltimore and Eastern Railroad and Port Reading Railroad will excuse him for not mentioning M. I. T. 1914. It goes without saying that Buck is a member of the best clubs in and around Philadelphia and has held important positions in the trade association of his industry and that he has a conservative religious affiliation.

Two make the list because of their aeronautical associations. One would feel very hurt if he did not find listed the name of Donald Wills Douglas, one of the world's greatest aircraft engineers. The United States Military Services are indebted to Douglas for the design of some of their best bombers. Since graduation

Douglas has been constantly associated in aircraft design and manufacture. Although at one time chief engineer for the Glenn L. Martin Company, Douglas for the most part has been the head of his own companies. He is at present President of the Douglas Aircraft Company, at Santa Monica, Calif. Many clubs, particularly yachting, include Douglas in their membership lists. We used to consider Harper as the class family man, but subsequently it was discovered that he had competitors. It was not until reading "Who's Who," however, that your Secretary realized that Douglas was one of them. This official publication gives Douglas as the proud father of Donald Wills, Jr., William Edward, Barbara Jean, James Sholto, and Malcolm Angus.

Of course, the other aviation name is that of Porter Adams, whose activities in this field have been most completely expressed through the listing of his activities in the National Aeronautic Association. In addition to holding the Presidency, Adams has held nearly every important office as well in that association. His other activities include the Presidency of the Thetford (Vt.) Village Society, Membership on the Thetford Water Board, Seventh Degree membership in the National Grange, Chairman of the Boston Municipal Air Board, Trustee of Norwich University, and of Thetford Academy. It likewise goes without saying that Adams is a member of many clubs, particularly in Washington. Just as his aviation associate, Douglas, is tied in the largest family contest, Adams is tied in the most-married contest, having thrice tried the adventure.

Because of his national activities as a "Sanitarian" we find Homer Northrup Calver taking a well-earned place on the honor roll. In addition to service abroad, Calver has been assistant director of Health Service at the National Red Cross Headquarters in Washington, Executive Secretary of the American Public Health Association, Assistant Managing Editor of *American Journal of Public Health* and the *Nation's Health*, Assistant Professor of Hygiene at the University and Bellevue Hospital Medical College. He lives at Douglaston, L. I., and has two daughters.

Little has been heard from Newson since graduation. Now we know why. He has been too busy handling his many directorships. Just listen to this: "Reves Jose Newson, Public Utility Executive, President New Rochelle Water Company, Greenwich Water and Gas Company, Pennsylvania State Water Corporation, Ohio Cities Water Corporation, Peoria Water Works Company, New Jersey Water Company, Lexington Water Company, Cement Lined Pipe Company." Then follows a long list of club activities, including being both a Mason and an Elk. Newson lives in New Rochelle and, of course, has his office in New York City. He has a son and two daughters.

With this inspiring start the Class of 1914 may well be proud of its members who have already made "Who's Who." — HAROLD B. RICHMOND, *Secretary*, 30

Swan Road, Winchester, Mass. GEORGE K. PERLEY, *Assistant Secretary*, 21 Vista Way, Port Washington, N. Y.

1915

This is the last issue of what has been an interesting year of notes for 1915. The delightful letters from our widely scattered classmates keep us in constant touch with their varied interests and activities. I do hope you will find some time this summer to write me something — anything — that I can use for a big opening number next fall.

Reg Pollard, X, writes from Berlin, N. H. Thanks, Reg, we are always glad to hear from you. "This is a delayed response to your appeal for material regarding the class notes. I have been located at Berlin with the Brown Company for the past three years; came up here originally in connection with a nitrocellulose development, then took over operations at the chemical mills, and at the present time I am operating the string mill.

"This section of the country is enjoying winter sports at present (February 14). Although I am not as young as I might be, I can still enjoy a cross country skii run or a slide down Mt. Washington. I have acquired a family of three sons and a daughter, who enjoy the out-of-doors as much as their 'old man.'

"Our class representatives here have dropped to Doug McMurtree and me. Alf Hall is now living in Portland, Maine, and Don White moved to Louisiana, where he is located with a pulp and paper concern in charge of power. — I expected to drive to Boston for the Alumni Dinner last week but the mountain roads were too icy and under construction so I called it off."

These big families startle me. I recently met Virginia Thomas, the daughter of our own good Howard. A tall, attractive, dark-haired girl of 16 in Newton (Mass.) High School. She must be the oldest class baby. I wonder if anyone has a child who is older? It would be rather interesting to know who will have the first child to enter college and proudly the first to enter Technology. How about some of you proud daddies sending me a boast about your grown-up children?

I wish you all a happy, restful, and enjoyable summer. If you are in or near Boston and will phone me during the day at Malden 2168, or during the evening at Lafayette 3726, I should be very glad to see you. — AZEL W. MACK, *Secretary*, 50 Joy Street, Boston, Mass.

1916

When in New York recently it was my great pleasure to spend Sunday evening with Irving McDaniel and his wife at their home in Spuyten Duyvil. Mac held me spellbound with tales of his Far East experiences. At the present time he is chief naval constructor at the Brooklyn Navy Yard and, I understand, is slated in the near future for the job of Naval Inspector for the New York Naval district.

Knight Owen is still located at Vineyard Haven at last accounts. The Boston *Herald "Mail Bag"* of March 9 contained

1916 Continued

a splendid letter from Knight radiating "optimism" to the effect that "when 120,000,000 people unite, victory is sure."

William W. Drummey has just been appointed superintendent of construction in the Department of School Buildings for the City of Boston at a salary of \$7,500.00 per year. The post is one of the most important in the City Service. He has been the architect of more than 20 schools in Boston and surrounding cities. Bill now has two sons plus a big Newfoundland dog. His chief mental relaxations are chess and contract bridge and he takes exercise by boxing and swimming.

It was a great treat to receive a long letter from Doug Robinson after his return from a trip abroad. I wish more of the classmates would take it upon themselves to do likewise. Excerpts from the letter follow: "Just returned from a business trip abroad made during the latter part of January and returning in March. The primary purpose of this trip was to see a new type of machine in operation which was of great interest to my company. Also, to get as much dope as possible on European cotton and rayon piece goods finishing. I went over on the *Berengaria* and spent a week at Manchester, which is the center of the English cotton trade. I found the people most courteous and their machinery was much older than ours, which ran more slowly and required more operatives. The wages paid were extremely low.

"After visiting London I flew to Düsseldorf on the Rhine by way of Brussels and Cologne, where I stayed about a week visiting German finishing plants and machinery builders. The German machinery is well made and runs more to originality than to standardization. The finishing plants used more modern machinery than the English plants I saw. After visiting Frankfurt on Main and Chemnitz, I went to Switzerland visiting a beautifully equipped and operated plant there. Then to Lyons, where business was terrible, by air to Paris, across the Channel in a 38-passenger plane with Stribling, the boxer, a fellow passenger and an excellent luncheon served to us, to London, Southampton, and home on the *Bremen*. In Paris, I got a kick out of hearing President Roosevelt's inaugural address coming over the radio. I stepped into Harry's bar. The place was jammed with Americans. Paris has quieted down a lot since the war or else I have. I got quite a blow one morning in London to read in the papers that all the New York banks were closed and wondered what I was going to use for money. Fortunately, however, American Express Company checks were good and I ate regularly." Plan to spend the summer at Mattapoisett again this year and hope to win some cups with my sailboat."

At Thompson's Spa in Boston early in May I had the pleasure of seeing Jap Carr. He was spending the day with his local representative and now is running the Carr Biscuit Company in Wilkes-Barre. He reported that business was

picking up decidedly and that he was still young enough to enjoy playing tennis. — HENRY B. SHEPARD, *Secretary*, 269 Highland Street, West Newton, Mass. CHARLES W. LOOMIS, *Assistant Secretary*, Bemis Bro. Bag Company, Memphis, Tenn.

1917

An Associated Press dispatch from Columbus reports the election on April 29 of Dean H. E. Lobdell as President of the National Association of Deans of Men. The complete platform on which the good Professor was elected was not given out for public perusal. The only resolution published was one "declaring the sale of beer on university premises or in fraternity houses would influence students to drink." It later developed that the successful candidate had done no active campaigning and had in fact sat on his front porch at Cambridge, Mass., not only during the election at Columbus, but also during the preparation of the resolutions. It is intimated that Mr. Enos Curtin may be invited as a special lecturer at the next meeting of the Association. — Of even greater significance among the honors being heaped upon Professor Lobdell recently is, we are told, that this year's *Technique* has been dedicated to him.

The worthy Dean on a recent trip to Connecticut stopped off at Bridgeport and found Arthur E. Keating there. It is reported that said Keating is a much bigger man than formerly, although his height has not increased. We gather that he has been enjoying life generally.

Harrison Prescott Eddy, Jr., in a tour of the eastern part of Massachusetts, came in contact with Charles Gilliard, formerly associated with Chambers Me-haffey and other notables and found him fair, fat, and 40 as well as comfy and wealthy. This leading spirit of Course II is now Lord High Commissioner of Public Works at Andover, Mass. He indicated that, much as he would like to join another special reunion, he feared the effects upon his delicate constitution. Bill has interviewed a number of other members of the Class in this area and as a result has cancelled the Corinthian Yacht Club reservations previously made for June. He denies a pernicious rumor that his own change of attitude resulted from his last year's defeat at the hands of Ham Wood and other students of Hoyle.

The following news item appeared in a leading Rochester newspaper: "People passing Kodak Park the other afternoon were somewhat interested in the spectacle of a reasonably large man with gray hair shinning up one of the park trees after a flaming red kite that had become caught in the upper branches. — A short distance from the tree a middle-aged man, whose dignified appearance contrasted curiously with the adolescent practice in which he had been engaged, held a ball of string that had a few minutes before restrained the soaring red kite.

"... The fellow up the tree, persisting, even though the effort threatened to ruin his trousers, presently reached the kite, extricated it from the upper

branches, and descended. Then the two men, with rather more seriousness than is usually brought to the business of kite flying, ran across the greensward with their kite and saw it quickly rise again to the upper air.

"Inquiry disclosed the fact that the two men were not engaged in a purely recreational pursuit, no matter how much fun they may have had with their kite. There was a deep utilitarian design behind their sport. The kite flyers were Eastman executives who are interested in enlarging the market for Kodapak, one of the company's by-products, used as a protection for perishable articles of merchandise. Someone got the idea of using it in the construction of kites. So Jackson B. Wells ['16] and L. L. McGrady ['17], the two kite flyers, bought a ten-cent kite and a five-cent ball of string for an experiment. They replaced the paper of the kite with red Kodapak. The kite flew admirably. When the sun struck its shiny red body it glowed like a flame against the blue canopy of the sky."

A recent survey shows a very considerable number of the Class — some 35 — listed in "Who's Who in Engineering" and there are many others undoubtedly who have a proper place there. The same investigator reports that there are seven classmates in "Who's Who in America." They are: E. E. Aldrin, J. P. Connolly, L. W. Douglas, H. E. Lobdell, T. Saville, C. E. Turner, and E. P. Warner.

We have no doubt that a complete summary of the careers of these men would be of interest but the all-powerful editors have asked that space be saved in this issue and it is necessary therefore to refer you directly to "Who's Who."

E. P. Brooks has accepted an executive position with the United States Steel Corporation. Details are lacking but it does appear from this distance that Penn has responsibility and opportunity worthy of his ability. The opportunity, at least, must have been good because he left a position with Sears Roebuck that had sufficient promise to satisfy one or two ordinary mortals.

The address changes that have come in include one or two of special interest: James Sherry O'Brien is now listed as at the Hotel Knickerbocker, Chicago; Malcolm C. Brock has now as a mail address care of Putnam, Rochester and Company, Inc., of Buffalo.

Larry Gardner made a social call and shared a cafeteria luncheon here recently. He is becoming more active with the several interesting developments of the Bemis group although his main interest is still the casein paint products that make his competitor, Stan Dunning, keep on his toes. — RAYMOND STEVENS, *Secretary*, 30 Charles River Road, Cambridge, Mass.

1918

News of the brethren trickles in from the four winds. Elmer Legge was seen in the halls of Technology recently actually engaged in the business of hiring two men for his laboratory in the American Steel and Wire Company plant at Worcester.

1918 Continued

Don Merrill wrote up from Hartford asking for a man to take the place he leaves vacant as he moves along in the Hartford-Empire Company organization. Sumner Wiley is chief draftsman and engineer with the Allied Architects of Washington, D. C.

Richard A. Wilkins memorializes us from Rome, N. Y., for referring to him in a recent issue as Dr. Wilkins and suggests quite properly that the unwarranted use of that dignified title puts upon us a moral responsibility to secure an honorary doctorate for him. Sam Chamberlain, recently returned from Paris in order to join the staff of the Architecture Department last March, held an exhibition of etchings in the Rogers Building. Though the hairs of his head are definitely numbered, he still retains that jovial, come-hither expression which is well-nigh irresistible. We never could quite fathom why all of his drawings didn't turn out to be street singers or doorways in Normandie containing a stout peasant woman who was really one vast, substantial smile.

All this time Uncle Mumford has enjoyed an undeserved distinction. The Class of 1933 numbers among its Course VI shining lights one John F. Longley, thus qualifying Uncle James Edward and Uncle John Robert — those incomparable Longley twins who took Civil Engineering back in the days when knighthood was in flower.

From Frederick Philbrick comes interesting first-hand testimony concerning the recent California earthquake. Sez he: "I presume that you saw more or less of it in the newspapers; but from the examples which have come to my notice, the whole thing was so garbled and distorted that you could not have obtained a clear picture. According to scientific reports, it was not what is considered a 'great' earthquake, such as occurred in San Francisco in 1906. On the other hand, the density of population and value of buildings in the affected area caused a loss which was very considerable. Various estimates of the actual damage have been made; but from my own observation and taking into consideration replacement values, I believe that one-hundred million dollars would be very conservative.

"One desirable result is that it has focused public attention upon the importance of proper building laws and enforcement, and particularly to the necessity for carrying out such regulations in schools, theaters, hospitals, apartments, and so on. The California Institute of Technology, located at Pasadena, is looked upon locally as the supreme source of engineering and scientific information in the same way as M. I. T. is considered outstanding in the East. There have been a number of meetings of engineers and scientists appointed to study the results of the earthquake and to prescribe remedies for eliminating dangers in the future. It appears very clear that earthquakes are bound to occur in this part of the country, and we may as well accept this condition and provide for it. It seems that in

Italy, for example, where earthquakes have been prevalent for years, the building laws recognize this condition and prescribe for structural design which will withstand horizontal as well as vertical stresses.

"It was most interesting to note that reinforced concrete structures withstood the shock almost 100%, whereas brick structures were demolished in practically all cases. Investigation by engineers has indicated that in the cases where greatest damage resulted, the mortar used to bind the bricks consisted largely of sand with no cement. There is no doubt that there was considerable skimping along these lines, but from my own observation and experience, any building which does not consist of a homogeneous unit, such as reinforced concrete, will be seriously damaged, if not destroyed, by a major earthquake.

"I know that before I came to the Pacific Coast, such things were far from reality, and I am sure that I did not appreciate the seriousness of what might happen in case of a real earthquake. In San Francisco the damage in the disaster of 1906 has been ascribed almost entirely to the fire rather than the earthquake. There is no doubt that the fire added seriously to the total damage, but it also appears clear that the earthquake alone was a most important factor. In Long Beach, the fire loss was very little and I believe this is due primarily to the fact that someone had presence of mind enough to turn off the gas immediately following the first shock. If this had not been done, it appears most probable that the damage resulting from fire would have been tremendous.

"It is interesting to know that most of the California cities have a program all prepared to be carried out in case of a major disaster. This is something which I must confess I never heard of in the East and yet it is a matter which should be given serious consideration in any community. Even though earthquakes have not been experienced with serious intensity on the Atlantic Coast within our history, serious fires and floods can cause just as much damage, and the necessity for a clear-cut organization to assume control in such an emergency is, I believe, just as great.

"The whole thing impressed me with our impotence in dealing with the real forces of nature. Just imagine a building like the Los Angeles City Hall, which is some 400 feet high, being bounced around like a child's toy in a basket. I was about 20 miles away from the area of greatest disturbance and yet I found it difficult to keep my feet in an ordinary residential dwelling. I have talked with people from Long Beach who were absolutely thrown to the floor several times during the first major shock. I have talked with others who were on the beach and who state that the earth actually undulated in visible waves. According to definite records, the ground in Long Beach was actually lifted some 30 inches, and there was a horizontal movement of several feet. Some time when you have nothing

else to do, just stop and try to figure out just what these conditions would do to beams and structural members of a building."

Washington has made desperate efforts to revive the country in time to make us all want to celebrate by blowing off at a Fifteenth Reunion, but . . . \$\$\$\$\$. Under the leadership of Shorty Carr, the New York group intend a one-day outing including a dinner, whereas the Boston crowd are considering the same sort of thing, probably to be held at Ralph Mahoney's Stirling Inn just outside Worcester. The abandonment of more pretentious plans seemed wise to the committee because a canvass in Gotham and researches in Bean Town showed plainly that a one-day outing was the will of the majority.

Well, we'll see you in Chicago in July, whither we are taking the family by push cart. — F. ALEXANDER MAGOUN, *Secretary*, Room 4-136, M. I. T., Cambridge, Mass. GRETCHEN PALMER, *Assistant Secretary*, The Thomas School, The Wilson Road, Rowayton, Conn.

1920

Judging from the shifts in location I hear about, the members of the Class of 1920 are a bunch of restless nomads. I have already mentioned that Bud Coffen was married and settled down in Wellesley. I can now give you his address as Dean Road. I also mentioned that Johnnie Nalle was back at the Institute and was living in Winchester. His address is 27 Allen Street.

Jack Coyle and his bride reside at 102 Ardmore Road, Hartford, Conn. Charles Lawson has moved from Evanston, Ill., to Buffalo, N. Y., address 763 Main Street. G. R. McNear is now in Chicago and may be reached at 2236 West 115th Street. K. B. White, that arch globe-trotter, may be found, at least for the time being, in Paris, France, where he is with Wallace Clark and Company, 25 Avenue Victor Emanuel Third. Lary Boyden has also deserted Evanston in favor of Winnetka, Ill., address 1087 Ash Street. Johnnie Herron lives in what is left of Long Beach, Calif., 278 Granada Avenue. W. B. West has left Brooklyn, N. Y., and gone to Valley Stream, N. Y. E. M. Reynolds is now in Metuchen, N. J., having moved there from Utica, N. Y.

It seems to me as if we ought to have a lot more news, but every member of the Class appears to have successfully avoided personal, phone, or written contact for the past seven months. Hope you all have a swell vacation, anyway. — HAROLD BUGBEE, *Secretary*, 7 Dartmouth St., Winchester, Mass.

1923

By the time these notes appear the Reunion will be over but a report on it will have to await the fall issues of The Review. Meanwhile I have Pete Penny-packer's report on the spring meeting of the New York Club, the interest in which speaks well for the possibilities of the Reunion, which as I write is still forthcoming.

1923 Continued

Dick Kleinberger was in charge of the meeting and provided a cup for the winner of a bridge tournament held as part of the affair. Other entertainment included card tricks by F. P. Squibb (who presided as President of the club this year) and some played poker. Lem Tremaine and Charlie Mapes reported on Reunion plans and program.

The 18 present were Squibb, Bob Shaw, Pyle, Glendinning, Pennybacker, Steve Miller, Goetchius, O'Connor, Keck, Mapes, Ted Carpenter, Coffin, Hampton, Tremaine, P. C. Smith, Chan Clapp, Kleinberger, and Pennypacker.

Dan Sayre, XVI, for several years assistant professor of aeronautical engineering, recently resigned to head the new Curtiss-Wright aircraft school at the Boston Airport.

Bill Blandy, II, was married on April 29, to Miss Bernice Pierce Crosby of Melrose, according to the Boston *Herald*. The item says that following a three weeks' motor trip in the South the couple will be at home at 119 West Wyoming Avenue, Melrose. Blandy is with the Telephone Company in Boston.

In reply to my request for an accounting for himself, Paul J. Culhane, V, had the following to report from Wilmington: "I received my master's and doctor's degrees from Northwestern, acting as assistant, lecturer, demonstrator, and so on, during my career there. In 1927 I came with the du Pont Company, being engaged in information service work. In 1932 I graduated from Temple Law School and in January of this year I was admitted to the state and federal courts in Delaware. The first of February I was transferred to the Patent Division of the Legal Department of the du Pont Company. Other Tech men in this same division are Charles F. Daley '24 and Arthur G. Connolly '27."

I regret to report that Lt. George C. Calnan, XIII-A, was one of the victims of the disaster to the *Akron* on April 4.

Johnny Beretta, IV, consulting engineer of San Antonio, Texas, breaks a ten-year silence to give a circumstantial account of himself: "Following graduation I went to work for the American Bridge Company in the Ambridge, Pa., plant. After a little more than a year at Ambridge, I was transferred to the Philadelphia office of the erection department and was placed as a resident engineer on the Delaware River Suspension Bridge between Philadelphia and Camden. On completion of this project, I was transferred to the New York design office of the American Bridge Company, where I remained until December, 1927.

"At this time I resigned from the American Bridge Company and returned to San Antonio for the purpose of opening my own engineering office which was effected in January, 1928. Since that time I have been head of the organization known as J. W. Beretta Engineers, Inc., and, despite the so-called depression, have been making good progress and have a nice business. This organization now numbers five engineers beside myself and we are all thoroughly happy over the

progress of the business. Our work consists of general consultation in all types of engineering. For the most part, our work has consisted of structural work, including a number of bridges. The firm has been a pioneer in the Southwest on the development of continuous and rigid frame bridges, both in concrete and steel. That we have made definite progress along these lines is proven by the number of engineering articles concerning our work. During the past year I have been invited to present papers on rigid frame before convention meetings of the American Society of Civil Engineers and the American Concrete Institute.

"Along with my engineering work I have developed two avocations. The first is aviation in which I have taken an active interest. For the past four years I have served as Governor for Texas of the United States Amateur Air Pilots Association. In addition to this, I am President of the Texas Aviation Conference and Chairman of the San Antonio Chamber of Commerce Aviation Committee. I am likewise serving as Resident Engineer in Texas for the Aero Insurance Underwriters of New York. My other avocation is the training of fine saddle horses, and I boast the ownership of an unusually fine Kentucky-bred gelding which I have named 'Wings.'

"In civic affairs in our city, I have also tried to do my part. I am serving my second year as Director of the San Antonio Chamber of Commerce. During 1929 I served as Antonio XI, King of the *Fiesta San Jacinto*, which is the San Antonio equal of the New Orleans *Mardi Gras*. As to marital affiliations, I have not yet taken such a serious step.

"In our section of the world, it is very seldom that I ever see any '23 classmates. Marvin Eickenroht, IV, and Bartlett Cocke '24 are both in San Antonio practicing architecture. However, during my infrequent trips to the East I always see Charles A. Thomas '24 and Hank du Pont, IX-B, who are both prospering mightily in Philadelphia and Wilmington."

I have a note from Henry H. C. Liu, VI, indicating that he is with the Western Electric Company of Asia at Shanghai. Among the address changes this month are the following: Malcolm Beattie, XV, from Fall River to Washington, D. C.; Bernard L. Chapin, XV, from Waukesha, Wis., to Belmont, Mass.; Lt. Roy Cowdrey, XIII-A, from Washington, D. C., to Balboa, Canal Zone; and Orr N. Stewart from Gary, Ind., to Cuyahoga Falls, Ohio. — HORATIO L. BOND, *Secretary*, 195 Elm Street, Braintree, Mass. JAMES A. PENNYPACKER, *Assistant Secretary*, Room 661, Eleven Broadway, New York, N. Y.

1924

"Look Who's Here! Jane arrived on April 15, weighing 6½ lbs." So reads a card that I have just received from Mr. and Mrs. William H. Robinson, Jr. Others might make some remark about Technology co-eds, but I think I'll just limit myself to extending the best wishes of the Class to Mr. and Mrs. Robbie.

Miss Eleanor Brice Kimball and William H. Van Dusen were married on May 6 in Bronxville. Miss Kimball (now Mrs. Van Dusen) graduated in 1926 from the Masters School at Dobbs Ferry and after a year at Smith, spent three years at Barnard from which she was graduated in 1930. Bill is with Dun and Bradstreet in New York and is now located there although his home address is not known.

And now for a whisper which will have become a constant topic of conversation by fall, by next spring a shout, and by June of next year a riot. It's our ten-year reunion. Bill has started the ball rolling by beginning to line up the preliminary items. So right now we can ask for one thing. Your ideas and your sentiments are immediately welcome. Send them in and get yourself a dime bank so you will have a little of the wherewithal to get there. — HAROLD G. DONOVAN, *General Secretary*, 372 West Preston Street, Hartford, Conn.

COURSE II

A recent letter from Mrs. Nesmith Thompson contains the regrettable information that Nesmith died very suddenly from asthma on June 17, 1932, at his home in Fitchburg, Mass. He is survived by his wife and baby daughter. Tommy will be remembered by his fellow students at Technology as an even-tempered gentleman and a staunch friend to all who in any way came in contact with him. He was a valuable member of the Gym team for several seasons and a student officer in the R.O.T.C. Since graduation he had been connected with the Parks-Cramer Company. His passing will be keenly felt by our Class and we extend our sympathy to Mrs. Thompson.

Bob Reid called on your Secretary for a short time about a year ago, when he was returning to Boston to take up his residence and act as New England representative on air conditioning for the American Blower Company. — H. C. Moore is on the instructing staff of the Mechanical Engineering Department at the Institute.

We all know that the quantity of notes appearing in these columns is not indicative of the sentiments of the individuals of our course. The situation is probably something analogous to Mark Twain's remark about the weather. "Everybody talks about it, but no one does anything about it." We expect a complete rehabilitation of interchange of news during the next calendar year, culminating in a grand splurge at the ten-year reunion in 1934. — FRED S. HUNGERFORD, *Secretary*, 1804 West Genesee Street, Syracuse, N. Y.

COURSE XV

Your Secretary met Herb Stewart the other day, our first get-together in several years. Herb was a research assistant in Course VI after graduation, and obtained his master of science degree in that course in 1926. Since October, 1925, he has been with the Westinghouse Company in Boston and is now central station engineer for New England. On June 22,

1924 Continued

1929, Herb was married to Miss Winifred Hughes of Fairhaven, Mass., and they have a son, Robert Hughes Stewart, born March 13, 1932. They are living at 87 Washington Street, East Milton, Mass. These facts are more or less hoary, but we know Herb won't mind and his friends who read this will be interested.

Herb tells me that Mac MacNaught is back in Boston with the Bryant Electric Company, but we haven't had a chance to talk to Mac and get the details. Tom Johnson left the Gillette Company about a year ago and is now plant superintendent for the Welch Manufacturing Company, in Providence.

Frank Storey has been with Jordan Marsh Company in Boston since graduation. After completing their two-year executive training course, which comprises actual experience in practically every department of the store, Frank became assistant buyer for sporting goods and sport clothes, and from 1927 to 1932 was the buyer for this department. Since last year he has been the buyer for stationery and the bridge and gift shop. Frank married Miss Gertrude Owens in 1927; they live in Belmont and have two children. — JOHN HOLDEN, *Secretary*, 77 Summer Street, Boston, Mass.

1925

Miss Georgina Pope Yeatman, IV₁, of Philadelphia, was, according to the *Boston Transcript*, guest of honor at a dinner given by the Women's City Club of Boston, Monday, April 17. After further details concerning the affair, the story adds that Miss Yeatman is President of the Women's City Club of Philadelphia.

Kenneth A. Lucas, I, of 435 Franklin Street, Reading, Mass., informs us that after receiving his degree at M. I. T. he took advanced work at Boston University, and received from that institution the degree of Master of Education. After concluding his studies he began teaching, and after a number of years in various high schools in Massachusetts and Connecticut, he is now taking leave-of-absence from educational work and is living at home, doing some work of his own.

Your Assistant Secretary received a letter from Frederic Walker, V, who is employed by the Roessler and Hasslacher Chemical Company. For a number of years he was at their plant at Perth Amboy, N. J., but more recently was transferred to their Niagara Falls plant and is living at 3702 McKoon Avenue. He is a research chemist in their organic synthesis department. He and Mrs. Walker now have two children, the second, a son, Frederic Rockwell, born on February 13. The first was a daughter, Lois Mary.—News of the marriage of our former President, Glen Bateman, has finally arrived from Johannesburg, South Africa.

Frank Preston sent in the following news: The General Electric Company is certainly keeping Joe Russell busy: "Your letter caught up with me in Chicago and has been on my immediate attention file for almost a week, so I've decided at least to acknowledge it. I wish

we could keep in better touch with one another and with the rest of our class, but just now things in general are rather hectic and there isn't much time, at least in my wild travels, for much personal correspondence; even the home folks are neglected.

"For the past two years I've been on the go 90% of the time, so I rather envy your more regular life at Stonington and certainly wish I could get up there for a week-end. Bridgeport is still headquarters for me, but I haven't been back since December."

Myron Doucette writes from Brooklyn, N. Y.: "Your letter of just a month ago came as a complete surprise. In fact, I've just recovered. It seems to me that Stonington has a familiar ring to it. I think it's because there is something Mystic about it. Let's let it go at that."

"I have long had a theory in the back of my head that one of the factors of the present War of 1929 was the Reunion of 1930. Unless I am mistaken, the last class notes appeared about that time. Hence, I am wondering if the lack of these notes wasn't a contribution to the depression. Anyhow, they have been missed, and I am sure the Class of '25 will be grateful to you for their return."

"You are interested in news. As regards other members, I haven't very much, but here's a little. I have seen Eddie Dirks off and on at various meetings of the Ordnance Reserve. Last August we were together on active duty at the Institute. He is still single, has a job (Tydol Oil, I think), and owns a car (one yellow Studebaker, to wit).—Lieutenant Art Ross and I have been keeping track of each other since the last reunion. Art graduated from the engineering school at Dayton and was transferred to Middletown Air Depot, Pa. He is in charge of all repairs on ships in some such area as is covered from Maine to Langley, and almost out to Dayton. I'm not too sure of that. He has had some interesting cross country hops, and I'm never surprised to hear from him in any part of the country. Whenever he stops at Mitchel Field he usually comes in and we have a chat."

"I saw Myrle Peck at the Auto Show a couple of years ago. He was then service manager for Graham Motor Car. Since then I think he has left them. — Chink Drew and I are still keeping the air from the public via Schrader. Chink is now with the oil division. His headquarters are at Detroit but he is usually to be found in Tulsa or thereabouts. He covers all of the Middle West territory, is still single and, like myself, a movie enthusiast. I refer to taking 16 m/m movies. — Our dear old friend Bob Huthsteiner owes me a letter or two. Guess I'll have to drop him a line."

"As for myself, there's not too much to be said. Since seeing you last, I managed to give the old S.B. a little brother in the form of a M.B.A. from the Graduate School of New York University (Business Administration). As for work, well, in the year 1933, the fourth of the depression, we find that some people are still

inclined to use their old tires and likewise their old tire valves. Nevertheless, we are still going along, watching the expenses and limiting the purchases of red ink. — By the enclosed snaps, you will ascertain that the brightest spot of these past few months has been one Dorcas. She put in her appearance on January 13 last year. Now, at the age of some 15 months, she has her own allowance, pass key, and is after her old man for a roadster. The recent large dividends of Eastman have been due to our investments in their products. I have been attempting enlarging of both stills and movies."

"With the approaching summer season, we'll be traveling back to Haverhill. I'm sorry that Stonington is not on the shortest route. We usually make about 15 trips a year. If possible, I hope to drop off the 'regular' route sometime and give the farm an inspection. — There doesn't seem to be much else for news, Frank. I have recently changed from Assistant Production Manager to Assistant to the Works Manager, handling the contact between him and all engineering functions. It promises to be an interesting job. Outside I have been very active in Ordnance Reserve work. I'm attached to the N. Y. Ordnance District which meets once a week and requires plenty of work. I have been to M. I. T. the past two summers and had some excellent courses. By the way, I've seen Henry Sachs quite a bit as he's attached to the N.Y.O.D. also. My five years nights at N. Y. U. set me back in Army work as far as service in grade goes. So while I have passed all exams and obtained a Certificate of Capacity for Captain, I'll have to wait and serve two more years as 1st Lieutenant before I can be promoted. — This seems to be my little story for this evening. We are still listed in the phone book and should be glad to hear from any lost souls who may chance to be in town or passing through."

Don Wheeler, Arnold Marshall, and I, along with three others, compose the local trained forest fire fighting crew. I don't expect we shall have our names in the headlines; but if you read of the Taugwank Bushwhackers, you may know that we were on the job. — All for this time. F. P.

We are organizing a double system of corresponding secretaries. Some time this summer practically all members of the Class may expect to receive a letter either from their own Course Secretary, or a call or letter from a geographical secretary located in their own city or section of the country (or of the world, for that matter). — HENRY V. CUNNINGHAM, JR., *Secretary*, 87 Milk Street, Boston, Mass. HOLLIS F. WARE, *Assistant Secretary*, 16 Smith Avenue, Reading, Mass.

COURSES III AND XII

J. G. Creveling writes that he has been in Bolivia for the last two years. For 20 months he was Assistant Geologist and Foreman at the Patinō mines. He left that position last January to become Assistant Superintendent with the Compania Huan-

1925 Continued

chaca de Bolivia, located at Pulacayo, Bolivia. This is an old mine producing silver, lead, zinc, and copper, and provides problems of extraction and ventilation.

T. A. McEndree is now in Central City, Neb. From 1927 through 1932 he was employed in several mining camps of Peru and Chile and finally spent some time with the Andes Copper Company. For one year he was night foreman and had the great pleasure of being the only "Gringo" in the mine after 6 p.m. His last year with Andes was served in the capacity of safety engineer. On his return to the States, McEndree stopped off at Havana, Cuba, to see A. L. Sherman, who is in charge of the Ingersoll Rand office there.

H. H. Taylor, Jr., at the Franklin County Coal Company in Illinois, has been developing a method for breaking down coal from the solid face underground without the use of explosives. This method, which makes use of compressed air, has already been employed in two mines and will soon be installed in one mine so as to do away with explosives entirely. From the safety standpoint, the method has already proved far superior to other methods and costs are now being reduced to a reasonable figure. The coal broken down by this method is in a less shattered state than is the case where permissible explosives are used. The U. S. Bureau of Mines is taking much interest in this work because of the safety feature and contemplates a series of tests for a report. — FRANKLIN L. FOSTER, Secretary, Room 6-202, M. I. T., Cambridge, Mass.

1926

From the New York *Post* of April 27: "Miss Christine Crawford Gibbs, daughter of Mr. and Mrs. Edwin Gibbs of 37 Washington Square West, is being married this afternoon to Mr. George John Leness. The ceremony is being performed at the residence of the bride's parents, where a reception is following. — The bride is being given in marriage by her father, and her sister, Miss Marion Isabel Gibbs, is her only attendant. Mr. James P. Merrill is the best man and the ushers are Messrs. William Watson Northrop, John A. Hoxie, James Adam Lyles, and James Torrance Northrop, all of this city.

"Miss Gibbs is a graduate of St. Mary's School, Peekskill, and of Smith College. Mr. Leness, who is with the Chase Harris Forbes Corporation, has a degree in civil engineering from the M. I. T. and is a graduate of Harvard College. He is a member of the Harvard Club of this city, where he and his bride will live upon their return from a wedding trip to Bermuda." The reportorial ambiguity of the quoted sentence preceding this one will doubtless result in a demand for retraction on the part of George, to whom we extend our sincerest felicitations.

From the Boston *Herald* of May 14: "Mr. and Mrs. Frank Plimpton Scofield of 11 Washington Street, Newton, gave a luncheon at their home yesterday in

honor of the engagement of their daughter, Miss Anne Scofield, to Mr. Leonard Frederick Lawrence of Manchester, N. H. Miss Scofield is a member of the senior class at Smith College and Mr. Lawrence, who is the son of Mrs. Sally E. Lawrence of Wellesley Farms, was graduated from the M. I. T." Again felicitations.

From the Boston *Transcript* of May 6: "One of the late season gallery exhibitions is that of 18 landscape paintings in tempera, by Walter E. Campbell, an architect newly encountered as artist in the freer themes.

"Mr. Campbell studied painting under George Elmer Browne, both in New York and at the artist's summer school at Provincetown. He also was a pupil of Jacques Carlu and Professor W. F. Brown at M. I. T. Since graduation from M. I. T., in 1926, he has been a member of the architectural firm of Hogg and Campbell and has taught at the Boston Architectural Club and also given private instructions in drawing."

From William Dixon: "I am, as you may judge from the letterhead, working for the Atlantic Refining Company as a chemical engineer. My engagement to Miss Virginia Yerger of Drexel Hill, Pa., has recently been announced and we expect to be married in the early fall."

From Bob Brand: "I have been with Barber-Colman Company since the fall of 1927, and have been taking care of their advertising, publicity, and sales publication work for most of that time. We have two kids, Mary Clare, age four-and-a-half, and Mike, age one-and-three-quarters. Rockford is just far enough from Chicago so as not to tempt us too often to blow our dough on mundane pleasures, and yet near enough so that we can indulge in a few of the big city advantages occasionally."

At the last Alumni Council meeting, the Secretary had the pleasure of seeing Eben Haskell, F. D. Green, and A. W. K. Billings, Jr. — Jim Drain is now in Brooklyn, N. Y., at 2 Grace Court. Bill Hicks is with the Sinclair Auto Service Company, Clayton, Mo. Bill Hinckley is at 1279 East Poplar Street, York, Pa. Raymond Mancha may be reached at 421 Melrose Street, Chicago. Mooney Owen has returned to his native city of Washington and his address is 1431 Eye Street, N. W. Sid Baylor, long among the lost, is now at 2703 Estes Avenue, Chicago. Bill Rivers' address is now care of Socony-Vacuum Corporation, Lahore, Punjab, India.

Congratulations are in order for Lee Cummings on his winning his doctor's degree from the Institute. — Lawrence Staples Hunt is working at the Cambridge, Mass., plant of Lever Brothers Company. Until recently he had a position as a quality supervisor, engaged in maintaining the standards and appearance of the principal brands of soap made there, but at present is in the engineering department (which, by the way, is headed by H. A. Morrison '14) in the capacity of acting steam engineer. He is unmarried. — On May 26 Dave Shepard was in Boston and your Secretary spent

several very pleasant hours with him. He has a daughter nearly eight months old and lives at 19 Pingry Place, Elizabeth, N. J. — Other recent callers include Francis Grueter and George Booth.

Eben Haskell, curator of our Class Endowment Insurance, is just completing his annual tussel to collect premiums. He presents the following report: "As of to date, May 29, there are paid in full 75 members of the original 397 who subscribed to the Fund. This is approximately 19%. A year ago this time there were 97 members paid in full; thus 24 have dropped by the wayside this year. In view of the severity of conditions during the last year, we do not feel terribly depressed. Of course, considering the Fund as a whole, it is rather pathetic that only about one-fifth of the number originally signed up are still making their annual contributions.

"In respect to the number of policies in force, the situation on the surface is not so unfortunate. There were 19 policies of \$5,000 each originally taken out. With cash on hand this year from the annual subscriptions, from the dividends, and from the cash available after one policy is canceled (it will be necessary to do this this year), we will be able to continue in force the ten remaining policies. In other words, in respect to total policies, our fund is still more than 50% intact, but, of course, this cannot go on indefinitely if the present rate of decrease in fellows paying continues.

"With conditions as they are, we have not felt it advisable to send out numerous dunning letters every year, but confine our notices and appeals to two efforts. We feel that when things pick up and the situation of our classmates is considerably improved, we will undoubtedly get better results than we have in the past and that from time to time fellows who have dropped by the wayside, due to sheer inability to meet their annual payments, will pay up the installments missed and continue with the fund. Probably at some later date we shall stage a 'Campaign for Reinstatement' and see what can be done because, having gone along so far, it would seem unfortunate not to be able to carry through to the bitter end.

"Every year some of the fellows show enough interest to write in personally and state why they are not continuing the Fund. These statements are, of course, treated absolutely confidentially, and it is encouraging to note that several members of the class are taking such an interest in the well-being of the Fund. We feel that those who have continued to pay for it at least five years certainly will continue to do their bit as time goes on.

"If anyone at any time wants to obtain any information about the Fund or wants to find out about being reinstated, they can write me care of Charles H. Tenney and Company, 89 Broad Street, Boston."

Those faithful few who continue to support the Class Endowment plan merit the congratulations of the class and the gratitude of the Institute. It is needless to say that the financial emergency has made it impossible for some of the origi-

1926 Continued

nal contributors to continue, however much they might wish to. Let's hope that we shall all be blessed with returning prosperity so that we may continue to give Eben all possible support in building up a substantial fund for the Institute. The Secretary takes this opportunity to express, in behalf of the Class, compliments to Eben for the energy and fortitude he has displayed in administering our insurance plan. — J. RHYNE KILLIAN, JR., *General Secretary*, Room 11-203, M. I. T., Cambridge, Mass.

COURSE VI-A

A word from Ralph Hammar which speaks for itself: "This is just a line to let you know the latest information about myself. I was admitted to the Bar last September, registered as a Patent Attorney in March, and will graduate from George Washington University Law School this June. Having been studying practically without a break since leaving M. I. T., first in Doherty's course in advanced engineering in Schenectady, and then in the Law School, I can truthfully say that I will be glad to be through with the routine of going to school. I seem to be much better adapted to law than to engineering and am looking forward to the practice of patent law with considerable interest.

"I was up to Cambridge a couple of weeks ago. The school certainly has grown in equipment since we were there. — Business seems to be picking up slightly. I have talked with people who are entering new businesses and making them pay, which is a healthy sign since new businesses always start to flourish just before the end of a depression. Last fall, a person who each year of the depression has seen things as getting worse and worse predicted that there would be a greater than seasonal increase in business this spring followed by a drop, and that next winter would be the last of the depression. The first part of the prediction seems to be correct and the last seems to be more reasonable with the lapse of time."

Since my last notes I have picked up bag and baggage once more, this time to Greenwich, Conn. Perhaps now that I am on the beaten path (we are only a short distance from the Post Road), some of you will look us up. — BENJAMIN P. RICHARDSON, *Secretary*, 3 Osceola Drive, Greenwich, Conn.

1927

Stirred by the dramatic story of a course secretary's regeneration in the May Review, plus gentle prods from Johnny Drisko and The Review Editors, your Secretary slides in under the wire with the following accumulation of information. Some of it is fresh, some not; but if it's still true, you can call it news; if not, then history.

With the exception of a letter from Dan Metzger, the only recent news has come to us in the line of duty. Roger Pierce comes down from the American Steel and Wire Company's plant in Worcester every few months to line up for

new testing equipment. He is responsible for much of the cable-testing methods used in the inspection tests prior to shipment. Joe Burley was in from the Boston Insulated Wire and Cable Company, principally to sell us insulated wire. We attacked him to buy something from us, and the result was a draw so far as any immediate profit to either of us was concerned. A problem in our line brought two letters from Bert Houghton, which, with the one from Metzger, is reproduced later. Another frequent visitor is Bill Berkeley, high-pressure insurance salesman for the Equitable. Most of them are flooded by one argument we have for not being interested, but Bill always comes right back with arguments for an annuity and even went so far as to try to have me fitted for one.

Speaking of line-of-duty, please note how well Lee Miller's testimonial for the telephone's landing a man a job (May Review) tied in with the current newspaper advertising of the Telephone Company.

Dan Metzger writes: "I have noticed a marked absence of '27 notes for many months. No doubt we have all withdrawn into our shells to nurse the knocks of the great depression, and will remain uncommunicative until it is over. I am disinclined to break the great mutual silence, and so, except for saying that I have fortunately been employed here (the Grinnell Company of Chicago) the past three years, retained my good health, and escaped many worries by remaining single, I have only the following to submit, which you may edit, use, or omit, as you see fit: Many men of '26, '27, and '28 will be grieved to learn that on February 2, the tireless pen and buoyant spirit of Babe French was stilled. She was a cheerful contributor of many striking drawings to *Voo Doo* and an honorary member of Woopgaroo. Her husband, L. F. Baker, II, and little daughter, Sally, of Morant Bay, Jamaica, British West Indies, survive her."

Bert Houghton writes: "I am batting around in the wilds of southeast and south Texas, still shooting dynamite at a fearful rate, much to the gratification of du Pont and Hercules. Why doesn't the Class of '27 ever have any news in the Review? Every time the publication comes out, I hopefully turn to the class news section but am always disappointed. I never have any news, so I can't help you much. We are still in the 'Bluebonnet Country' and expect to be for some time to come, although this is too good a town to leave us in for any length of time. By rights, my crew should be in a place with no running water or at least no running hot water until the summer is far enough advanced for the city standpipe to have reached 120° F. I am still expecting to be sent back to the place where we were nearly eaten alive by mosquitoes in January. That would be plain unadulterated hell during the summer."

"This doodle-bugging is a fascinating game, and very few of us quit because of the poor living conditions or the lack of

permanence. Occasionally the change from single to double harness is the occasion for a change in occupation, but for the most part the fellows take their wives along to help them gripe, and, believe me, a bunch of females with nothing to do all day long can show an equal number of men how to gripe scientifically. It is unfortunate that it is not possible for the married couples to keep house, but that just won't work when we stay in one town for only a week or two at a time, expecting to get moving orders at any time."

Our vital statistics contain a number of marriages, one birth, and, we are sorry to report, one death. Jacob Dunnell died in Boston shortly before Christmas from a wound received while cleaning a revolver. He was, to quote the *Boston Herald*, "production manager and naval architect employed by a Philadelphia aircraft corporation. As an outboard motor enthusiast, he had acquired considerable attention."

The baby was a girl, Caroline, we believe, born last summer to George and Mary Houston. Congratulations, Caroline. Speaking of which, we find an ancient memorandum from Don Spitzli which seems to have been left out of our last report. Strictly speaking, it belongs in the nursery school department: "A letter from Les Woolfenden says that he is still with General Aniline at Grasselli, N. J., and living in Elizabeth. The announcement of the arrival of his son failed to appear in The Review, for which failure I was pleasantly taken to task and with some justice since that son is now two years old. Such neglect will not occur again if the members of the course will send me all the news about themselves and families."

George Cunningham writes: "For your information, I've been out in the great Southwest (Oklahoma, Kansas, and Missouri) selling for my company, the National Oil Products Company of Harrison, N. J., manufacturers of sulfovated and solutized oils, fats, and waxes. However, they recalled me to the home office to be contact man for the technical department. Coincident with this advance, I married the former Miss Betty Way, whom I met in Boston seven years ago when I was at M. I. T. — If you can see your way clear, I should be obliged if you would note my change of address in your notes, so that my friends will know where to find me." The Cunninghams are living in East Orange, N. J., at 179 Harrison Avenue.

Another Course X chap, Pub Whittier, was married to Miss Ruth Blunt of Bound Brook, N. J., a graduate of Mount Holyoke. They went to live in Salem, N. J., but a more recent address places them at 209 West Garfield Avenue, Norwood, Pa. — Ike Swope married Mrs. Elizabeth Hanson Burr at Salem, Mass., last summer. — Dexter Coolidge married Miss Allie Mae Dickerson at Norfolk, Va. — Charles Kingsley and Miss Rebecca Sears were married last fall. Charles is an instructor in the electrical engineering department at the Institute. — James H.

1927 Continued

Williams, Jr., and Mrs. Adele LeBourgeois Brackett were married in Ipswich. — Constantine S. Stephano and Miss Martha Taylor were married in New York early in December. They took their wedding trip to Europe and the Orient and returned to live at Elkins Park, Pa. — Again Course X, with the wedding in Brookline of Howard P. Ferguson and Miss Cecilia A. Scahill. Art Connell was one of the ushers. Their address is 3536 Tolland Road, Shaker Heights, Ohio (a suburb of Cleveland). — John Tweeddale and Miss Lillian Freeman were married in Auburndale. Harlan Sisk was one of his ushers. Tweeddale works for Electric Research Products Company in New York and some months back reported to one of the professional societies on an extended investigation into the noise made by elevated trains. The noise, the paper showed, was very loud.

Several others have been publishing. A recent issue of *Product Engineering* has a story on some of the design features of the ill-fated *Akron* written by Tom Knowles of the Goodyear-Zeppelin Corporation. — Frank Massa is with RCA-Victor in Camden, specializing on devices for converting acoustic into electrical energy and vice versa. He has had one paper recently on a ribbon-type telephone receiver for high-quality reception. We understand also that he has a finger in the ribbon-type microphones used by many broadcast stations. — Bill Zisman, some months back, published a paper in the *Physical Review*. He is now working in the Jefferson Physical Laboratory at Harvard.

Professor Locke writes: "H. N. Lary, who is with the Empire Zinc Company as geologist at the zinc mine at Gilman, Colo., reports that mining in his part of Colorado is rather quiet at the present time. He is still happy to have a job and reports that he and Mrs. Lary are both well. As a side-line, he picked up a lease and option on a gold placer mine last spring (1932) and it looks promising, so he feels that if worst comes to the worst, and he should be out of a job entirely, he can fall back on this mine to support him."

George W. Knight started work at the General Theological Seminary a year or so after graduation and last fall was ordained to the deaconate at the Church of the Advent on Beacon Hill, Boston. He went back to New York to continue with his studies. — JOHN D. CRAWFORD, *General Secretary*, General Radio Company, 30 State Street, Cambridge.

1928

"A complete success," is the most comprehensive description of the 1928 Fifth-Year Reunion, which was held at the Toy Town Tavern, Winchendon, Mass., on June 3 and 4. The scant attendance at other fifth-year reunions which have been held during the depression led the Reunion Committee to believe that only about 30 men would finally show up, especially considering the fact that economic conditions had grown steadily worse during the past year. Our final check showed, however, that depression

or not, the class of '28 still has that extra something that it takes to make records. (Pat yourself on the back after that one!)

A full bus-load left the Institute buildings about 9:30 Saturday morning and arrived at the Toy Town Tavern before noon. Several of the fellows, including Johnny Stack, Bill Birch, Lou Miller, Ed Walton, Benny Hough, and Bill Kirk, arrived at Winchendon the previous day and greeted the Boston gang as they came in. By the time luncheon was over, the number had swelled to over 40, and a final check showed that 52 members of the class attended the big event.

In addition to the six names mentioned above, our "roll call" lists the following men as present and accounted for: Joe Parks, Ralph Joep, Jim Donovan, J. A. Jamison, Charley Southwick, George Chatfield, John Russell, Jerry MacGillivray, Bill Gorfinkle, Howdy Root, Stan Humphrey, Gordy Collins, Bob Harris, Chuck Carter, Pete Kirwin, Dick Davidson, Moon DeCamp, Dick Hildick, Tom Larson, Johnny Carvalho, Dick Spofford, J. A. Monier, Bob Proctor, Newt Foster, Nap LaCroix, Chris Case, Johnny Melcher, John Praetz, Joe Guertin, George Mangurian, Bill Murphy, Don Frazer, Chick Lyons, Jim Allen, Bob Kales, Ed Birkenwald, Don Kennedy, Al Knight, George Palo, Hal Porter, Frank McGuane, Lew O'Malley, Jim St. Louis, Ed Ure, Jim Tully, and Bill Carlisle.

Almost everyone who attended expressed keen satisfaction with the food and entertainment facilities afforded by the Toy Town Tavern. This hotel has an exceedingly fine location on a high hill overlooking the town of Winchendon, with a large, picturesque lake in the immediate foreground. Its excellent golf course was a source of delight and trouble for about half of the fellows who came all supplied with clubs. Most of the golfers found the course quite sporty, but there were three potential Gene Sarazen's who wrinkled up their respective noses and pronounced the 18-hole course as being a bit on the easy side. That is probably the necessary professional air of golfers who shoot in the low 80's. In any event, Bob Harris, Tom Larson, and Jerry MacGillivray turned in several cards with 81's, 82's, and 83's much in evidence. Your correspondent made the bad mistake of trying to stand the pace of this crack-shooting threesome, but after giving him a little preliminary encouragement, they set up some system termed a "syndicate," and proceeded to take this gullible duffer to the "cleaners." Imagine getting a three on a tough little hilltop hole, only to find Tom Larson nullifying your best efforts with a cute little birdie — two!

Following luncheon, the entire crowd proceeded to a diamond laid out back of the Tavern where the single men proved that they have less worries to disconcert their ball-playing ability. The benedicts went down to speedy defeat by a large margin, although no two accounts agree as to the final score. Incidentally, each team had at least four shortstops and

seven to eight outfielders! Part of the married men's difficulty was caused by Johnny Stack's attempt to catch the ball in one hand and guzzle beer from a bottle held in the other. However, this poor technique was partly made up for by the brilliant fielding of Moon DeCamp. Altogether, it was quite a game, and times at bat were made more enjoyable by several cases of beer parked in the shade of the old oak tree.

Following the big swat-fest, Messrs. Parks and Joep, seconded by Messrs. Kirk and Hough, had their "out for blood" golf (?) match. The purpose of this game was two-fold: first, to determine who was the worst golfer (Parks or Joep); and second, to ascertain which of the aforesaid gentlemen more nearly filled a pair of tight, shrunken, grey flannel pants, which had been the subject of much discussion for several weeks previous at meetings of the Reunion Committee.

It was decided that the man who lost each hole would have to wear the tight pants on the following hole while his more successful opponent would have the freedom of some real Scotch kilts, and a wee, bonnie Scotch hat. Joe Parks started out in the kilts and held on to them for about three holes, then he blew up, and the costumes were changed right on the course. The final count showed that Joe was the worst golfer by 19 strokes. He won four holes; Ralph won 11; and three were tied. Much of the fun was supplied by the seconds. Benny Hough seconded Ralph Joep, and Bill Kirk aided Joe Parks. Each of these seconds supplied each other's costumes. Benny appeared as Mahatma Gandhi — in sheets; and Bill came out in a cute little girl's dress with pink and green ruffles and ribbons, and was promptly christened "Bo-Peep." Joe and "Bo-Peep" got their big ducking in the swimming pool after losing the match, and the crowd was much amused to see the colors of Bill's costume run down his well-shaped legs. Before the "dunking" was over, however, Ralph, "Mahatma" Hough, and Bob Kales (with all his clothes) went into the pool.

Messrs. DeCamp, Root, Foster, Proctor, and Spofford will be interested to know that the clubhead which your Secretary cracked off on the third tee of the golf course was only held to the handle by a fraction of the club shaft, the rest having been sawed away by practical jokers, — Parks, Hough, Kirk, et al, in an effort to throw off his game so that a royal "razzberry" could be administered. This same operation was also performed on a new limber-shaft brassie, which did not break, and proved to be expensive fun for the gentlemen just mentioned.

The Reunion was favored with perfect weather, and everyone seemed to have a glorious time. The Committee's best compliment came in the form of a petition signed by over 20 men requesting that the Class of 1928 depart from precedent and run a similar get-together every year! The feasibility of this plan seems quite doubtful, in view of the effort and expense involved in putting such a party

1928 Continued

over. However, the matter is being considered and you may hear more about it in this column later.

We were only sorry that conditions prevented more of the class from being present. Even the pleasure of attending Saturday night's big banquet, seeing the crowd of over 50 familiar faces, swapping experiences, and singing Tech songs was worth the effort and expense of the entire week-end. If you weren't there, you missed a wonderful Reunion; don't fail to be there at the next one! — GEORGE I. CHATFIELD, *General Secretary*, Room 11-203, M. I. T., Cambridge, Mass.

COURSE I

I am indebted to Professor Spofford for the following interesting letter from Topping, who may be reached by addressing South Persia State Railways, Ahwaz, Persia: "I'm division engineer in charge of port construction, and enjoying the job, since there's plenty of it. I'm alone with 1,800 Persians, Arabs, and Indians, my neighbor at the half-way point being the only white man this side of Ahwaz, 70 miles up the track. We're building an island which is ten miles out in the Gulf at high tide and 50 miles inland at low water, but still connected by a fine channel. The work is varied, the job of 'mayor' of the town being part of it. We're marking the channel, building station, warehouses, shops, train crew and section houses, bridges, and discharging ships, besides keeping trains running. There are now 250 kilometers of line and it is being pushed through very heavy mountain country in the north.

"The heat is terrific, 120° in the absent shade, and the humidity, usually very low, has been for these two months 100% so that we are always drenched in perspiration. Food is scarce, but very cheap. Servants (cook and house boy) amount to \$12 a month. Otherwise there are no expenses.

"Archæological curios are plentiful, coins of Alexander the Great and many much older being frequently dug up in the many ruins. Ahwaz is the site of old Nasserie where the remnant of Valerian's army, enslaved by the Persians, built a masonry dam three-quarters of a mile long across the Karun River, which now serves as the foundation of our bridge. The line runs past the ruins of 'Shushan', the Palace of Ahasuerus, husband of Queen Esther. Near it is an irrigation tunnel 40 kilometers long in rock, dating from remote antiquity and still in use. There are two or three 3,000-year-old bridges. Persepolis, capital of Darius, Cyrus, and Xerxes is some four days away across the mountains. Archæology happens to be my hobby, so I am reveling in it. So far I have a number of tiny glass bottles from cities of the Elamitic kingdom antedating Babylon, an exquisite bronze figure of a Roman, and from later times and of comparatively recent date, some chain mail armor and fine engraved steel helmet with gold overlay. Of course, fine rugs are cheap, but I'm biding my time on those because it's so easy to get stung."

Art Josephs, who has been in Vienna for the past year was granted a doctor's degree by the Technische Hochschule early in May. — Charlie Richheimer informs me that Shipley is piloting for Colonial Airways, is married, and is the father of twins. Triple congratulations, Ship! — So ends five years as alumni. — GEORGE P. PALO, *Secretary*, 426 East 238th Street, New York, N. Y.

COURSE VI-A

Well, the last article caused a lot of verbal comment, but it only scared up one letter. Harry Hardsog wrote that I was two jumps behind him. He is now with the Attleboro Steam and Electric Company in Attleboro, Mass. Since the Providence job which I said he had, he's been transferred to Fall River as power engineer and after a year there, to the present company as power engineer. Harry was married on April 5, 1933, and is living at 199 South Main Street, Attleboro. Congratulations, Harry, and thanks for the news.

In reference to the last article, there seems to have been a few mistakes; but let me say in defense that if there were any errors, I was misinformed and that is quite possible, because a great deal of the news came to me third and fourth hand. Bradshaw says the account of him was approximately correct except that the transfer from outside to inside wasn't exactly a promotion. He doesn't have to work Saturdays and Sundays, and he works in the Manhattan Studios of Fox Movie-tone as there are no Long Island Studios. Sorry, Brad, hope this straightens it out. If any of you want to write Brad, you can use the address I gave you, that was, and is, correct.

Chick Lyons doesn't make trips to East Orange any more and while it doesn't seem correct to say that Chick has given up his Honor, nevertheless he doesn't see her any more. All right, Chick, I promise that will be the last pun about Honor. However, if one knows Chick, one knows that he must be going some place, but where now? The Bell Labs and the D. and R. of the A. T. and T. merged, but at this writing I haven't heard of any of our bunch being affected. Here's hoping they won't feel any effects. — Was talking to Frank Sweeney the other day and he says he and the family are doing fine. Pete Zugale still continues to burn up the road or roads between East Orange and Woodhaven, and Hal Curtis and Edith still continue to enjoy life in East Orange. Someone told me that Art Elliott is still working for Stone and Webster in Texas and that they thought Art was married. That's all the news there is. — HUYLER B. ELLISON, *Secretary*, 41 Wallace Street, Freeport, N. Y.

1929

It is with deep regret and sorrow that we announce the passing of three of our classmates: Harold Welch Fairchild, XVI, Robert Shields McClintic, XV, and Herbert Moore Wescoat, XVI.

Hal Fairchild had been a test pilot for United Aircraft and Transport Corporation almost since he completed his train-

ing at Kelly Field and had received his commission. He crashed after climbing an estimated 35,000 feet while making an altitude flight in a pursuit plane powered with an experimental motor. He was doing valuable work in his profession, as his contribution to the S. A. E. *Journal* (either February or March issue) indicates.

Herbert Wescoat, XVI G, crashed while on duty aboard the *Akron*. — Mac McClintic died from fatigue and exposure while on a winter vacation trip in the woods north of Skanee, Mich. — We extend our sincere sympathy to the families of our deceased classmates.

We are indebted to Chuck Nord, XV, for forwarding the story of his friend and our classmate McClintic's death. However, Chuck gave us no information about himself. — Gordon Williams, I, wrote some news for Course I under that heading, but neglected to tell any secrets about himself.

Alexander Darragh, II, probably believes more strongly in Santa Claus now than when he searched for his Christmas presents under a decorated and lighted tree. Last Christmas he won a '33 Pontiac Sedan in a Barbasol Singin' Sam radio contest. — Ernest Kohler, VIC, is now in the research department of Grisby-Grunow as radio engineer. He was formerly with the Museum of Science and Industry. — The marriage of Jim Reddig, XVI, to Geraldine Badenoch of Maplewood, N. J., was announced early in April. We extend our best wishes for a happy and prosperous future. — Earl W. Glen, *General Secretary*, Box 178, Fairlawn Ohio.

Course I

The long-silent Course I *Secretary* is heard from at last, but unfortunately has little to report. The best news is that Larry De Fabritis was awarded the traveling scholarship of the Boston Society of Civil Engineers. He sailed last August for Germany and is now studying hydraulics in Continental universities. — Cliff Kittredge, Hunter Rouse, Link Reid, and Bob Philippe are all at the Institute in various capacities ranging from research associate to student.

Jack Hallahan, Ted Alexieff, and Ted Malmstrom are living in greater Boston. Malmstrom is making the most of the depression by dividing his time between the fair sex and a job, the driving of a delivery truck for a local grocery store. On certain occasions he has been known to go from one to the other without bothering with sleep. — GORDON R. WILLIAMS, *Secretary*, 31 Concord Avenue, Cambridge, Mass.

1930

COURSE VI-A

Spring fever appears to have had a high incidence among the members of this course. Activity was at a low ebb, especially in regard to answering my letters.

I have taken George Schaible to task gently by calling him up to ask him why he didn't write to me. George had an iron clad alibi, though. He and his wife have been busy moving to larger quarters in

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Albany. His work now consists of helping to satisfy the increasing demand for telephone service which is beginning to show itself in his locality. George is planning to spend part of his vacation in New York City and I hope to see him then.

I was fortunate enough to get to Open House this year. Steve Prendergast also went up, driving both ways in an open car. He was nursing a delicious wind burn when last seen. I understand from Steve that Ray Bowley was assisting in demonstrating one of the communication exhibits. Steve is becoming witty lately. His latest observation is that if he gets married and has twins he will name them Timbie and Bush, after his favorite textbook.

Best wishes to all for a happy summer — E. E. FERGUSON, *Secretary*, 60 Eaton Place, East Orange, N. J.

COURSE VII

One of the best features concerning these course notes is the fact that the total absence of news has caused imagination to run a rapid course. We met Bob Phelan in a Woolworth store the other day eating lunch. Good old corpulent Bob is bald headed. Hard work and no play has made Bob give up the hey-hey. Yes sir, let's get you straight about Robert, he is now designing gelatine crystals for the Atlantic Gelatine Company, Woburn, Mass.

Wallie Tibbitts is married, and has not been heard from. Cecil Dunn stated that from an authentic source he has learned that Wallie is running an art studio on Atlantic Avenue, but Cecil is not always correct. In fact, he was very much in error when he said that Dave Stanley was playing the violin in a Back Bay night club, because we know that Dave never touched anything more wicked than a banjo. Cecil is working for a higher degree at the Institute. In his spare time he has found a hobby, none other than writing a little advertising copy for Raymond's. If you notice the recent Uncle "Eph" ads, the character of Cecil Dunn stands out predominately. Good old Cecil, the last we saw of him was in a barber shop, getting trimmed.

Dick Foster is selling Probak blades. He did some work for Whiting Milk Company in Providence. We haven't seen him since he completed that famous hanging drop experiment before a big crowd at Open House. Oh well!

That reminds us that Bernard Cantor is now at Tufts Medical. He chose Tufts because it is nearer the Chopstick Restaurant than Harvard. He is the smallest student at the college, just as he was at the Institute. When the Boston Public Library held a book holiday at which any book taken from the library at any time could be returned without fine, Bernard returned books from 17 different libraries, three distant states, and two foreign countries. When Morrie Shaffer heard that Bernard Cantor returned those books, he immediately withdrew them for his own personal use. Which reminds me that Morrie and Mrs. Kaye and myself had a

great time in England last summer, and we certainly hope to visit him again. Morrie is doing excellent work and enjoys the country life of England a great deal.

Art Heifetz is busy returning books that Bernard Cantor owes. Art is planning to get married soon. — Milt Mezooff has become a meat racketeer. He is selling meat that contains all the vitamins. His slogan is "Buy from my Rackets and Prevent Rickets." Not bad, Milton, you old test-tube stealer. — And for myself, I am still connected with restaurants and can be seen in one each day at noon with Mrs. Kaye. I am now living at the address given below. — SIDNEY L. KAYE, *Secretary*, 137 Englewood Avenue, Brighton, Mass.

1931

It was requested that the class notes for this month be as concise as possible, so you 'con' size up this, our last feeble effort for the year, in that light. Speaking of light, things have been bright for Mr. and Mrs. Bert MacLeod, at least they have had a little son, Richard H., who was born on March 27. May we extend our congratulations.

Bob Baxter dropped into the office a short while ago. Bob is going to work for the Owen Illinois Bottle Company. He was working for Sears Roebuck, but the new slogan of the bottle company, 'beer today and corn tomorrow' caught his eye.

Had a letter from Buck Moody which follows. Buck's job, as you will notice, is the best he could get by a dam site. Here is the letter: "At first I was indignant. I thought even of registering a complaint with my good friend President Compton. But now that is all past and I can only sit back and frankly admire any man who can pun as frequently, consistently, and vilely as you and John P. Medbury. One thing though I should like to know: do you lie awake nights thinking of them, or is it a gift? (Buck, I'll have to let you 'punder' over that.)

"I read your plea for news in the last Review. Yes the mail goes through, even here, and hereby am setting out to comply. The fall after our graduation, after registering and attending classes for one day at Tech, I received notice of a job with the Bureau of Reclamation in the Denver Office, working on Hoover Dam design. It looked good to me so I dashed over to see Uncle Horace, canceled my registration, packed my bag, and took the next train to Denver.

"Design work is O.K. but as I wanted to get into the field, I asked to be transferred as soon as possible. And so it was that last July six junior engineers, including myself, received orders to report for duty at Boulder City as soon as possible. Upon arrival here we found that the only quarters available were tents. Tents are O.K. sometimes but when it gets to be 115° in the shade — no shade available — as it does here, well they're not the best place for sleeping during the day after working the night shift. (Evidently Buck is a way past "tense" by a shade.)

"My job at first was inspecting the lining of the diversion tunnels, later the earth fill cofferdam, and then last winter when the construction work slowed up a little bit, I was transferred to the field office here in Boulder City.

"I have had one slight mishap since I have been here. Fell 25 feet from a jumbo in one of the tunnels and broke an arm. During the time in which the arm was healing I took a trip back to Boston but only had a few days to spend there.

"The job is great. Being given my choice, I couldn't have picked one that would have been more in the line I wanted to get into. Of course the 'new deal' hit us highly paid government employees in the wrong direction, but even so I'm glad to be here. The chief drawback about this place is that it is so damn far from Denver that it makes it rather expensive if you want to go up there once in awhile.

"Well, Mac, I guess I've rambled on for long enough. Pardon the rotten typing but just remember that if I wrote in long-hand you wouldn't be able to read it at all. (Myrle Perkins take note.) You can use as much, or preferably as little, of this life history as you wish. And don't forget that if you or anyone else passes through any of this God-forsaken country out here, I'll be looking for you to pay me a visit." Buck's address is Boulder City, Nevada, care of U. S. B. R. Thanks for an interesting letter, Buck, and lots of luck.

Follows a letter from Myrle Perkins and if you think it is piled on a little too thickly, it is probably because of the fact that Col. Stoopnagle dropped the "Shuffle off to Buffalo." Myrle says: "I can see that you need succor in the news item situation from Western New York, so harken unto the following red-hot dope:

"The far-famed Sid Miller, X, is helping Messrs. du Pont carry on the great business of rayon making. Don't know how Sid likes the work or exactly what he is doing although I have seen him several times on little get-togethers, but you know these Buffalo get-togethers and if you don't, ask Stu Knapp, the puzzler.

"McNaughton, XIV, is with Nat. Analine and Chem., breaking beakers, hearts, and so on. I guess that you know that Mr. Robert Parker, X (yes, the one on the stage), is a highly prized intellect at the same plant. Your humble correspondent also gets most of his bread but very little of his butter at the same address, doing engineering work, if you please. (Myrle, a little is 'butter' than none at all.) J. J. Hogan, X, of practice school fame ('29 or '30) and none other than Sanford Moss, X, also hang their hats at the same emporium of colors and smells. I nearly succumbed the other day when I addressed a dirty piece of humanity thus, 'Who the H—— is boss around here' and had McCormick, X, yes, the Indianapolis Mac, reply, 'Well, I'll be — and so on.' Mac is operating in the plant and has a right good job. Don't write, though, he hasn't any money to loan.

"If I've forgotten anyone, let me know, I'll send all the news that's fit to print.

1931 Continued

"John, would it be too much of an effort for you to drop into the Alumni Office and inform them of the above address?" (Glad to do it. For the benefit of the fellows, it is 53 Otis Place, Buffalo.)

This is about all that I can assemble at one sitting. Will keep you informed of developments. Myrle's last sentence reminds me that there are a couple of the men in the photography business, but as we haven't heard from them we imagine that nothing new has been developing.

The third letter that I have is from Walt Semion and reads: "I have just received three copies of The Review and was surprised at the number of '31 men who got married, or were just getting married, or intend to be married. I am still wondering whether I am wrong or they are just a little off. (Walt, maybe they are fit to be tied.) To tell the truth I am so busy now that I do not know when it might happen in my life.

"Four months after graduation I started with Consolidated Aircraft of Buffalo, now I am connected with Sikorsky Aviation Corporation of Bridgeport, Conn. Work five days, practice golf a little, and the rest of the time I am busy writing a book, all my own too. Don't worry, even if the book will be published, you will have difficulty in finding it, since I am going to use a pseudonym. (That will be an "author" problem for the boys.) First, it is a lot more convenient when it comes to trouble; secondly, my friends will not find out that I am just another poor writer. — Will try to drop in our good old M. I. T. when I am around Boston." — JOHN M. MACBRAYNE, JR., General Secretary, Room 1-181, M. I. T., Cambridge, Mass.

1932

The spring crop of engagements include that of Robert Baylor Semple of St. Louis to Miss Isabelle Ashby Neer of Brookline; Henry B. Mitchell to Miss Dorothy Parsons (Vassar '32), Winchester; Cecil Boling of Bedford, Ind., and Boston, to Miss Cathryn Lucille Bridge of Newton; and Philip L. Bruce to Miss Louise W. Trowbridge, both of Newtonville. We are further pleased to announce the following marriages: Fred Devoe Williams, Jr., and Miss Rachel Estelle Dobbins, April 29, in New York City (address after June 1, 246 Center Avenue, New Rochelle); John Navas and Marjorie Morland Carter, May 10, New York City; Edwin Burnley Powell and Miss Eleanor Rice Griggs of Waterbury, Conn. The Class extends congratulations and best wishes to one and all. — CLARENCE M. CHASE, General Secretary, 38 Pearl Street, Hyannis, Mass.

COURSE III

Good news still comes in from the '32 men of Course III. A letter from Professor Locke not long ago included some information about Bérubé. He has just secured a job with the Province of Quebec Bureau of Mines, and will be an assistant on a geological party making some investigations this summer. Sometime since June he has spent four months in the city engi-

neer's office drawing plans and making calculations for the building of a bridge. And then went on several fishing trips as a member of the crew. He has done a little traveling around, as some others of us have done, for contacts and general information.

A second letter from Professor Locke, which came about the time I was getting this off, tells us that in the early part of May Bearce landed a position with the Pittsburg Midway Coal and Mining Company at Pittsburg, Kansas, as a chemist's assistant. This appears at present to be only for the summer, but we extend our best wishes that something will develop out of it for the future. He was traveling toward Idaho, where he and Haynes have a gold claim, but was stopping to see various people *en route*, some for the purpose of making contacts and inquiring about jobs, and others to furnish them jobs in keeping his car in a running condition. Apparently automobiles suffer from the depression as well as human beings. I am noticing the same thing. It came to a climax when a connecting rod broke through the engine block to see what the country looked like around Lebanon, Mo. It must have liked the appearance because the engine was left there and another substituted for it.

In the same mail came a letter from Keskulla dated May 12. He is still with the King Solomon Mines Company at Black Bear, Calif. The mill, and so on, which he helped construct last summer and fall went into operation about the first of the year. Kes was made assayer, and has been kept busy with routine assay work. There will be some diversification for him before long, however, in the cyanide treatment of flotation concentrates which have been accumulating until there was time to set up the cyanide equipment. Kes says that a few more years spent in the hills may break him forever of wanting to get back to civilization. Personally I cannot blame him much. He says that there are but two seasons out there, and the other one is just getting well started. They "are just getting used to a little of that California sunshine after having gone without it the greater part of six months. Roads are drying up, leaves and blossoms are bursting forth, and welcome!"

I mentioned in the May Review that Johnson was with a grain and feed company. I have not as yet obtained the name of the company, but I understand it moves him from place to place around New England as an accountant, giving him a stop of about two months in each place. — I understand also, indirectly, that Chadwick has gone into a hardware store in Marblehead. Well, that ought to help the metals industry anyhow. I knew there was some reason for the pick-up in the steel business. Good luck, Ben! — HENRY J. CHAPIN, Secretary, 101 Ardmore Avenue, Ardmore, Pa.

COURSE IV

I guess some few miles of ocean are no good excuse for not writing any class notes. I haven't really had word from

any of the gang except for a few Christmas cards. Fred Moss, as you know, is teaching high school down in Fairhaven. Monty Ferar and Jimmy Walker are holding their own in the six-year class at Rogers. Rufus Dryer has just sublet the contract for a new house that he is working on. He didn't say where, but I imagine out in Rochester, N. Y. Tiny Bennett and Hugh Jones were under my constant eye and guidance all the way from Paris, through Switzerland, Italy, Sicily, and back through Southern France. Jones sailed home on a little freighter, the *Waubegan*, at the time when the *Exeter* foundered and had her crew picked up by the *S. S. Georgic*. His boat was only 200 miles away from the scene. He has since gone back to Thompson Ridge, N. Y., where he has started work on some projects in domestic architecture.

Tiny Bennett and I took a trip through Spain together and I left him at Mallorca to bask in the rays of swell Spanish sunlight. Maurie O'Brien is still working part time out in Cleveland (or was when I last heard), and as for Frankie Burwen, Tom Mackesey, and Joe Valverde, I haven't heard a murmur. — As for myself, well, in addition to travels in Switzerland, Italy, through Sicily on bicycle and back to France, where we sold Nellie, the flivver (a 1929 Ford roadster in which four of us had been traveling), Tiny and I chased down through some 3,000 odd miles on Spanish third-class trains all the way from Barcelona to Algeciras and back up through Madrid and Burgos. Took a jaunt over into Morocco and had no less than an illustrated copy of the "Arabian Nights" spread out before our very eyes. Then north to Paris, and at present, bucking the pre-spring gales that sweep France, I am cycling through Normandie. At Lisieux at present and hoping to be off for Germany in another couple of weeks, just we two (Petunia, my three-speed, demon of the road and myself). — ELLIOT L. WHITAKER, Secretary, Mutual Travel Operators, 3 Rue Auber, Paris, France.

COURSE X

Chase writes me this will be the last issue until next fall so I'll try to sum up the old data and offer what recent news has trickled in. In the first place, as far as I know, the following have just completed their work in X-A: Tom Anderson, Bob Billings, Ports Chambers, Joe Fahey, Bill Ball, Al King, Bob Semple, and Rolf Wallin. Our hats are off to these boys and here's hoping they land some good jobs. I know at least one who's all set but shall print nothing until I hear from him.

I've heard from our Prexy, D. Gilman, and from his pal, Dionne. The latter was married last summer and has been working with the A. & P. Tea Company as branch manager. He plans to return to the Institute next fall for a year's work. He's been living up here in good old Maine. As for Gilman, after I shovel a lot away and take the rest at about 50% discount, we find him located in Chicago with "Sizzes and Rhubarb" at their district office, doing some "smooth curve" drawing. He thinks the other President,

1932 Continued

Mr. Roosevelt, is doing purty good and must have had all the Harvard knocked out of him from rubbing shoulders with Al Smith. (Good ol' Don!)

The last I heard from Bill Holst (you owe me a letter, Bill) was that he was all pepped up over the oil business and I guess by now he is either just about to leave or has left for Palembang in the Dutch East Indies. Standard of New Jersey got something when they took our Willem. Bill will miss his operas on the other side of the world.

If no great sorrow has come into Johnny Crowther's life, he's still with the Marathon Paper Mills in Wisconsin. And last and least I'm still with the S. D. Warren Company, learning the paper business and just waking up to the fact that that course in Reports we had with Robby last year wasn't all "horse maneuvers." I've found out you might just as well go home if you can't toss a good line! And speaking of lines, I'm still waiting to hear from about 90% of "youse guys." — W. A. KIRKPATRICK, *Secretary*, 35 Orchard Street, Portland, Maine.

COURSE XV

Heigh-ho and a basket of Pimpernell! Here it is July, 1933. You say you know that already? All right, skip over that part. What I started to broach was this: Just one year ago we ventured forth in the world, gasping, gaping, galloping, seeking the Bonanza, anticipating every opportunity, and, in short, gaily dancing onto the crowded floor of industry, all set for a gay old time. And what a year it's been! At present most of us are still just dancing, and the rest are wallflowering at the Harvard Business School. (What, Ellis, are you going philosophic on us? Well then, skip over that part, too.)

This wielder of the secretarial typewriter did his own private venturing a few weeks ago into the region of Boston (Massachusetts, remember?) seeking pleasure only on a spring week-end. I managed to spend a few moments within the sacred portals of the Institute, but didn't get around to our end of the establishment. A visit with Carroll Wilson, however, did my eager heart a deal of benefit.

Carroll, in case you are back on your news, is assistant to President Compton and is rapidly achieving the renown he has longed for. He poses behind a mahogany desk (3' 6" x 7' 10" for you data seekers) overlooking the great court, reads a few letters, answers fewer, and between times gives apt advice (in *sotto voce*) over the telephone on matters of devious nature.

Carroll's pocketful of news last Review scooped some I've been saving up for a rainy day. (It's quite stormy now, dad gash it!) However, since the Course X correspondent is either nil or unwilling, I'm going to squeeze in here a juicy bit. Don Gilman, X, has been transferred to the Chicago offices of Sears, Roebuck and Company, Don and I, you know, joined the company hand in hand, as it

were, last July. I've seen him once since then. That was during my week-end in Boston, and at the Copley. The Copley, I said! A dancing place with music and everything. (See first paragraph.) Don went to Chicago from the Madison store. I'm still struggling in Oshkosh, at present in the hardware division, having a dandy time selling screws and nails.

From Sonny Scharnberg comes the featured bit of news. I'll quote: "My wife will be here early next month. . . ." Congratulations, Sonny, and apologies for our tardiness. May your blessings be many and your troubles few! Sonny enclosed a few notes, contributing the following interesting snatches: Ben Archambault, after finishing his training with Chase Harris Forbes in New York last fall, spent a few months in the office in Chicago and is now doing expertly in the Minneapolis office. — Dinty Moore is still with Brooklyn Union Gas. Bob Phemister is with Shell Petroleum in St. Louis, looking up. (That's the third time I've reported that. It must be true.)

A few lines from Sonny's letter I'll steal with his permission: "I have completed my training and am permanently assigned to the comptroller's department of the National City Bank which, in spite of Senate investigations, and so on, is still the strongest bank in the world. My work is extremely interesting, and much of my time is spent on inspection tours to our domestic branches, of which we have 83 in New York City and vicinity." And now for a bit of advice: "From all indications New York offers no more employment opportunities than any other place, so, if any of the men are thinking of trying to locate something in this town, they would do well to save the money. The brokerage houses are letting people go every day, the engineering firms are doing practically nothing, and, unless you are acquainted with half of the directorate, I doubt if there are any banking positions open. Everyone is quite optimistic, but they combine a great deal of caution with their optimism." However, worthy reader, remember Sonny painted that bleak picture six weeks ago. Certainly Mr. Roosevelt has done something about it by this time. Sonny's address is 70 Remson Street, Brooklyn Heights, N. Y. — ADDISON S. ELLIS, *Secretary*, 83 Washington Boulevard, Oshkosh, Wis.

1933

As I start on this my latest venture — keeping you men from drifting apart, even as we drift apart geographically — it is with pleasure that I look to the future. There is not much to say in this issue as we have just left Cambridge. Regardless of the hard times, some of us are fortunate enough to have jobs. Doug Stewart is going to be down at Lehigh University next year with the civil engineering department there. Quimby Duntley has made connections with the California Institute of Technology, where he is to be with the Physics Department.

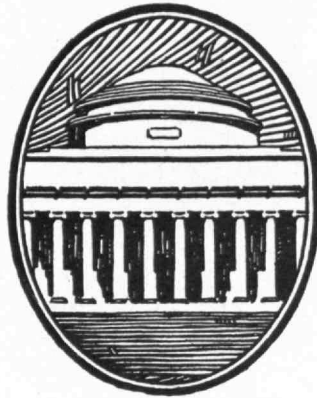
Out in the business world we hear that Don Fink has landed a job with the Dexter Folder Company in New York.

Dave Lee is to be with Macy's department store in the near future. Cobby Noyes is to work for an oil company. Fred Murphy has made connections with a cotton concern. Art Hungerford is to be with the National Broadcasting Company (not an announcer). Walt Duncan is going to make soap for Procter and Gamble. Cy Hapgood is to work with a lawyer in New York. Fran Vaughan is doing research work for the du Pont Company in Wilmington, Del. Frank Gilmore has connected with a jewelry concern. Ellis Littman and yours truly hope to establish ourselves in our family businesses. Ellis and I should welcome any suggestions as to what to do about marrying the boss's daughter in our cases.

Then we have some playboys and travelers in the class. Sam Prescott, Ed Wemple, Ellis Littmann, Lewis Stone, Jim Vicary, Fred Murphy, Dave Nason, Bill Jones, and Jack MacBrayne '31 sailed for Europe right after commencement for a six weeks' camping trip over there. There is no need to wish them a good time because there is no doubt that they are having one.

Apparently two of our Course XV men have decided that things are getting more prosperous. I understand Gene Cary was married during Senior Week and that Bob Kimball is to walk the plank in August. Congratulations and the best of luck to you. Gene is to continue his work with the Dining Service in Walker Memorial and Bob is to be Registrar MacKinnon's right-hand man.

In order to distribute the load of this job of Secretary and also to make the notes more complete, I have asked the following men to act as secretaries for their courses: I, Douglas M. Stewart, 19 Barnes Street, Providence, R. I. (after September 1, care of Department of Civil Engineering, Lehigh University, Bethlehem, Pa.); II, Stephen H. Rhodes, 43 Cedar Street, Taunton, Mass.; III, XII, Rafford L. Faulkner, 53 Packard Avenue, Somerville, Mass.; IV, Thomas K. Fitzpatrick, 24 Maple Street, Salem, Mass.; IV-A, Louis H. Flanders, 291 Rosedale Street, Rochester, N. Y.; V, Edward F. Hillenbrand, Jr., 52 Bayley Avenue, Yonkers, N. Y.; VI, VI-C, Edward S. Goodridge, 10 East 16th Street, New York, N. Y.; VI-A, John F. Longley, 11 Courter Avenue, Maplewood, N. J.; VII, Gordon C. Pratt, 106 Broadway, Taunton, Mass.; VIII, Wilber B. Huston, 1305 East Prospect Street, Seattle, Wash.; IX, Malvin J. Mayer, 64 Nonantum Street, Newton, Mass.; X, William E. Rand, 68 Radcliffe Street, Dorchester, Mass.; XI, Edward L. Jones, 101 Fredonia Avenue, Lynchburg, Va.; XIII, W. Clinton Backus, The Highlands, Seattle, Wash.; XIV, Otto A. Putnam, R. D. No. 3, Bath, N. Y.; XV, Frank Lopker, Jr., 1118 State Street, St. Joseph, Mich.; XVI, Frank MacMahon, 31 Governor's Road, East Milton, Mass.; XVII, Beaumont H. Whitton, 2018 Roswell Avenue, Charlotte, N. C.; XVIII, Leonard B. Gifford, 12 Pond Street, Marblehead, Mass. — GEORGE HENNING, JR., *General Secretary*, 163 Barbey Street, Brooklyn, N. Y.



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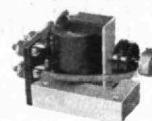
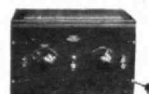
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